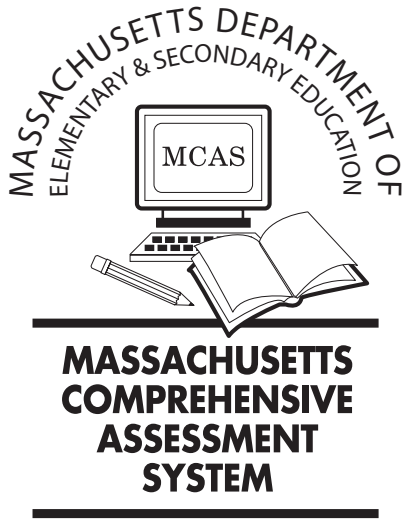

Release of March 2008 MCAS Retest Items

May 2008
Massachusetts Department of Elementary and Secondary Education

This document was prepared by the
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Table of Contents

Foreword

One of the goals of the Department of Elementary and Secondary Education is to help schools acquire the capacity to plan for and meet the accountability requirements of both state and federal law. In keeping with this goal, the Department regularly releases MCAS test items to provide information regarding the kinds of knowledge and skills that students are expected to demonstrate. In March 2008, MCAS retests in Mathematics and English Language Arts were administered in high schools across the state. In keeping with the Department's past practice of releasing all test items on which student results are based, all questions from the March 2008 Retests are included in this document.

The *Release of March 2008 MCAS Retest Items* is available only through the Department of Elementary and Secondary Education Web site at www.doe.mass.edu/mcas/testitems.html. The test items for both ELA and Mathematics can be easily printed from this site. The Department encourages local educators to use the relevant sections of this document together with their *Test Item Analysis Report Summaries* and *Test Item Analysis Rosters* as guides for planning changes in curriculum and instruction that may be needed to ensure that schools and districts make regular progress in improving student performance.

I. Document Purpose and Structure

Document Purpose and Structure

Purpose

The purpose of this document is to share with educators and the public all of the test items from the March 2008 MCAS English Language Arts and Mathematics Retests. Local educators will be able to use this information to identify strengths and weaknesses in their curriculum and instruction, and to guide the changes necessary to more effectively meet their students' needs.

This document is also intended to be used by school and district personnel as a companion document to the Test Item Analysis Reports. Each school in which a retest was administered receives a March Retest *Test Item Analysis Report Summary* and a *Test Item Analysis Roster* for English Language Arts and Mathematics. These reports provide data generated from student responses. Each report lists, for the school receiving the report, the names of all enrolled students who took the March 2008 Retest in that report's content area, and shows how each student answered each test question (item). The report labels each item as multiple-choice, open-response, short-answer, or writing prompt and identifies the item's MCAS reporting category. Item numbers in this document correlate directly to the "Item Numbers" in the Test Item Analysis Reports.

Structure

Chapters II and III of this document contain, respectively, information for the March 2008 English Language Arts and Mathematics Retests. Each of these chapters has three main sections. The first section introduces the chapter by listing the Massachusetts *Curriculum Framework* content strands assessed by MCAS in that chapter's content area. These content strands are identical to the MCAS reporting categories under which retest results are reported to schools and districts. In addition, there is a brief overview of the retest (number of test sessions, types of items, reference materials allowed, and cross-referencing information).

The **second section** contains the test items used to generate March 2008 MCAS student results for that chapter's content area. With the exception of the ELA Composition writing prompt, the test items in this document are shown in the same order and basic format in which they were presented in the test booklets. The Mathematics Reference Sheet used by students during MCAS Mathematics test sessions is inserted immediately following the last question in the Mathematics chapter.

Due to copyright restrictions, certain English Language Arts reading passages are not available on the Department's Internet site. Copyright information for all reading passages is provided in the document. For further information, contact Student Assessment Services at 781-338-3625.

The **final section** of each chapter is a table that cross-references each item with its MCAS reporting category and with the *Framework* standard it assesses. Correct answers to multiple-choice questions and, for the Mathematics retest, short-answer questions are also listed in the table.

Materials presented in this document are **not** formatted **exactly** as they appeared in student test booklets. For example, in order to present items most efficiently in this document, the following modifications have been made:

- Some fonts and/or font sizes may have been changed and/or reduced.
- Some graphics may have been reduced in size from their appearance in student test booklets; however, they maintain the same proportions in each case.
- All references to page numbers in answer booklets have been deleted from the directions that accompany test items.
- The four lined pages provided for students' initial English Language Arts Composition Retest drafts are omitted.

II. English Language Arts Retest

A. Composition
B. Reading Comprehension

English Language Arts Retest

Test Structure

The English Language Arts Retest was presented in the following two parts:

- the ELA Composition Retest, which used a writing prompt to assess learning standards from the Massachusetts *English Language Arts Curriculum Framework*'s **Composition** strand
- the ELA Reading Comprehension Retest, which used multiple-choice and open-response questions (items) to assess learning standards from the *Curriculum Framework*'s **Language** and **Reading and Literature** strands

A. Composition

The English Language Arts (ELA) Composition Retest was based on learning standards in the Composition strand of the Massachusetts *English Language Arts Curriculum Framework* (2001). These learning standards appear on pages 72–83 of the *Framework*, which is available on the Department Web site at www.doe.mass.edu/frameworks/current.html.

In Test Item Analysis Reports, ELA Composition retest results are reported under the **Composition** reporting category.

Test Sessions and Content Overview

The ELA Composition Retest included two separate test sessions, administered on the same day with a short break between sessions. During the first session, each student wrote an initial draft of a composition in response to the writing prompt on the next page. During the second session, each student revised his or her draft and submitted a final composition, which was scored in the areas of Topic Development and Standard English Conventions. The Scoring Guides for the MCAS English Language Arts Composition are available at www.doe.mass.edu/mcas/student.

Reference Materials

At least one English-language dictionary per classroom was provided for student use during ELA Composition retest sessions. The use of bilingual word-to-word dictionaries was allowed for current and former limited English proficient students only. No other reference materials were allowed during either ELA Composition retest session.

Cross-Reference Information

Framework general standards 19–22 are assessed by the ELA Composition.

March Retest Writing Prompt

WRITING PROMPT

Works of literature often feature young characters who are in conflict with the adult world.

From a work of literature you have read in or out of school, select a young character who is in conflict with the adult world. In a well-developed composition, identify the character, describe how the character is in conflict with the adult world, and explain how the conflict relates to the work as a whole.

B. Reading Comprehension

The English Language Arts Reading Comprehension Retest was based on learning standards in the two content strands of the Massachusetts *English Language Arts Curriculum Framework* (2001) listed below. Page numbers for the learning standards appear in parentheses.

- Language (*Framework*, pages 19–26)
- Reading and Literature (*Framework*, pages 35–64)

The *English Language Arts Curriculum Framework* is available on the Department Web site at www.doe.mass.edu/frameworks/current.html.

In Test Item Analysis Reports, ELA Reading Comprehension retest results are reported under two MCAS reporting categories: **Language** and **Reading and Literature**, which are identical to the two *Framework* content strands listed above.

Test Sessions

The ELA Reading Comprehension Retest included three separate test sessions. Sessions 1 and 2 were both administered on the same day, and Session 3 was administered on the following day. Each session included selected readings, followed by multiple-choice and open-response questions. Reading passages and test items are shown on the following pages as they appeared in test booklets. Due to copyright restrictions, certain passages cannot be released to the public on the Web site.

Reference Materials

The use of bilingual word-to-word dictionaries was allowed for limited English proficient students only, during all three ELA Reading Comprehension sessions. No other reference materials were allowed during any ELA Reading Comprehension retest session.

Cross-Reference Information

The table at the conclusion of this chapter indicates each item's reporting category and the *Framework* general standard it assesses. The correct answers for multiple-choice questions are also displayed in the table.

English Language Arts

Reading Comprehension: Session 1

DIRECTIONS

This session contains two reading selections with thirteen multiple-choice questions and two open-response questions. Mark your answers to these questions in the spaces provided in your Student Answer Booklet.

Dr. Dorothy Height has devoted over 70 years of her life to the struggle for civil rights. She is the chair and president emerita of the National Council of Negro Women and the recipient of the Congressional Gold Medal and the Presidential Medal of Freedom. Read this excerpt from her book Open Wide the Freedom Gates. *Then answer the questions that follow.*

Open Wide the Freedom Gates

by Dorothy Height

1 When I was fifteen, I won the Western Pennsylvania High School Impromptu Speech Contest. That meant I would participate in the state finals. They were to be held in Harrisburg, Pennsylvania's capital.

2 My Latin teacher, Mary Mohr, and the principal, Mr. Straitiff, kindly said they would drive me to Harrisburg. When they arrived at my house, my mother carefully placed on a hanger the white dress she had made for me to wear that evening. As I got into the car, she said, "No matter what happens, Dorothy, just hold *yourself* together."

3 When we got to Harrisburg, Mr. Straitiff drove to the hotel where he had reservations. After a few minutes he came back out and called for Miss Mohr to come with him. Miss Mohr was a lovely person, but she had rather homely buck teeth, and when she got upset, those protruding teeth would nibble in a peculiar way at her lower lip. When she came out of the hotel, her teeth were pulling away at her lip, and I knew something was wrong. She took a deep breath and said, "Dorothy, they say we cannot stay at this hotel. They say they did not realize that you were a Negro girl." She paused and nibbled for a moment. "I just don't know what we can do. We have to have a place for you to dress, but we also have to get on to Carnegie Hall[1] to prepare for the contest." Mr. Straitiff didn't say a word, but he was as red as a beet.

4 I remembered my mother's words: "Dorothy, just hold yourself together." I told Miss Mohr not to worry. We should go straight to the hall. If we could find a delicatessen and get some milk, graham crackers, and bologna, I could make a sandwich, then dress in the Carnegie Hall ladies' room. That's just what we did.

5 There were seventeen students in the contest, and I drew position number 17. I would be last, which was both good and bad. It was good because I would be fresh in the judges' minds when they made their decision. But it was terrifying because I would have to wait forever to get my assignment. Each contestant drew the subject only ten minutes before going onstage. Until then, they were kept closeted while others were speaking, leaving plenty of time for anxiety. While I waited, I did some

[1] *Carnegie Hall* — the name of a theater in Harrisburg (not the more famous theater of the same name in New York City)

exercises a teacher had taught me to make me relax. Finally the time came to draw my subject: the Kellogg-Briand Peace Pact, a treaty among sixty nations, signed in August 1928, which called for the renunciation[2] of war as an instrument of national policy.

6 Ten minutes later I stepped out onto the stage. I saw two or three thousand people in the audience but only one other person of color—a janitor, standing way in the back by an exit door. He smiled at me.

7 I had been struck by the assessment of the League of Nations[3] by Aristide Briand, the French statesman who had been one of the key negotiators of the treaty. He argued that it was not the official structure of peace that was important. He said the world could not rely on any machinery to bring peace; machinery was needed to facilitate the process, but peace would come only when people truly wanted it.

8 I said that I believed that peace would come in the hearts of all people someday, but it would take time. I recalled that two thousand years before,[4] the message of peace had been brought to the world, but there was not room at the inn for the messenger, who was turned away at his birth. His parents were turned away at the inn, just as my principal and teacher had been turned away that afternoon at the Harrisburg Hotel because I was with them and I was a Negro. "But the people at the hotel who turned us away did not know anything about me," I said. "They did not want me simply because my skin was colored."

9 I proposed that if we could follow Briand's idea, accepting the message that came to us two thousand years ago, we would learn to respect one another. We would try to live with one another and work together. Only as we began to see each other as human beings, I concluded, as part of the same human family, would we find lasting peace.

10 Several moments later the judges announced that I had won first prize. It was a unanimous judgment by a panel of all-white judges. The outpouring of applause was hard for me to believe, especially as there was no one of my race in the audience. I had just become the Pennsylvania State Champion in Impromptu Speech for the year 1928.

11 What a day it had been! In the afternoon white people had turned us away from the hotel. But that same evening white judges were fair enough to give me the decision. I had been turned away from a public facility because of my race, but so were my white principal and teacher. They shared my experience, and in that instant they were as black as me. I was representing Rankin High School, and they were responsible for me. They shared my humiliation. And they shared the glory that came with winning.

. . .

[2] *renunciation* — rejection

[3] *League of Nations* — a world organization established in 1920 to promote cooperation and peace

[4] *two thousand years before* — refers to the birth of Jesus

1 What is the **main** purpose of the simile at the end of paragraph 3?

A. It shows how agitated Mr. Straitiff is feeling.

B. It describes Mr. Straitiff's typical appearance.

C. It emphasizes Mr. Straitiff's friendly personality.

D. It implies that Mr. Straitiff regrets coming along.

2 In the excerpt, what is suggested by the repetition of the advice to Dorothy to "just hold *yourself* together"?

A. that Dorothy wants to calm Miss Mohr

B. that Dorothy wishes her mother was with her

C. that Dorothy disapproves of Mr. Straitiff's reaction

D. that Dorothy has taken her mother's words seriously

3 According to the excerpt, why does Dorothy believe it is beneficial to be the last speaker in the contest?

A. She will have an opportunity to relax before speaking.

B. She will have more time than others to prepare for her speech.

C. She will have a chance to learn from her competitors' performances.

D. She will have an opportunity to leave a final impression on the judges.

4 In paragraph 6, the **most likely** reason Dorothy mentions the janitor at the back of the hall is to show that she feels

A. happy for him.

B. distracted by him.

C. encouraged by him.

D. embarrassed for him.

5 According to paragraph 7, what impresses Dorothy about French statesman Aristide Briand?

A. his membership in the League of Nations

B. his opposition to the Kellogg-Briand Peace Pact

C. his faith that national policy could teach people to value peace

D. his belief that peace could be achieved if individuals desired it

6 In the excerpt, what increases Dorothy's astonishment at the "outpouring of applause" after she wins the contest?

A. Everyone sitting in the audience is white.

B. Everyone seems unresponsive during her speech.

C. There had been some disagreement among the judges.

D. The audience had clapped loudly for the speaker before her.

7 Based on the excerpt, which statement **best** describes Dorothy's attitude toward her teacher and principal?

A. She suspects them of taking credit for her speech.

B. She appreciates the support she receives from them.

C. She trusts that their judgment is better than her own.

D. She feels they have overreacted to the incident at the hotel.

8 Read the sentence from paragraph 5 in the box below.

> Finally the time came to draw my subject: the Kellogg-Briand Peace Pact, a treaty among sixty nations, signed in August 1928, which called for the renunciation of war as an instrument of national policy.

Which of the following **best** fits the meaning of the word *instrument* as it is used in the sentence?

A. a tool for recording or measuring

B. a device for playing or producing music

C. a means by which something is achieved

D. a person used by another to accomplish a purpose

Question 9 is an open-response question.

- **Read the question carefully.**
- **Explain your answer.**
- **Add supporting details.**
- **Double-check your work.**

Write your answer to question 9 in the space provided in your Student Answer Booklet.

9 Describe the contrasting experiences Dorothy has on the day of the speech contest. Support your answer with relevant and specific details from the excerpt.

In this excerpt from his memoir Rocket Boys, *retired NASA engineer Homer Hickam, Jr., tells of his teenage years during the 1950s in the coal-mining town of Coalwood, West Virginia. While most of his classmates expect to work in the mines, Homer becomes fascinated by space and decides to build his own rocket. Read the excerpt and answer the questions that follow.*

QUENTIN

from *Rocket Boys* by Homer Hickam, Jr.

1 QUENTIN WAS THE class joke. He used a lot of big words often delivered in a pseudo-English accent, and he carried around an old, cracked-leather briefcase, stuffed to overflowing with books and who-knew-what-else. While the rest of us played dodgeball or did calisthenics in phys. ed., he always had some excuse not to participate—a sprained ankle or a headache or some such—and sat in the bleachers and read one of his books. While all the other students traded gossip and nonsense in the auditorium in the morning and at lunch, Quentin always sat alone. He had no friends as far as I could tell. Although everybody, including me, made fun of him, I was pretty certain he was some sort of a genius. He could expound on nearly any subject in class until the teacher had to ask him to stop, and if he'd ever made less than a hundred on a test, I wasn't aware of it.

2 I figured if there was anybody who might know how to build a rocket, it was Quentin. The next morning before classes, I sat down beside him in the auditorium. Startled, he pulled his book down from his face. "I don't let anybody copy my homework," he said suspiciously.

3 "I don't want to copy your homework," I replied, although I would have taken his algebra if he had offered. "Do you know anything about rockets?"

4 A little smile crossed his face. Quentin wasn't a bad-looking kid for a genius. He had a narrow face, a sharp nose, crisp blue eyes, and jet-black hair that looked as if it had been plastered down with about a quart of Wildroot Cream Oil. "I wondered how long it would take for you to come to me with that question. I heard about your rocket, old boy. Blew up, did it? What made you think *you* could build a rocket? You can't even do algebra."

5 "I'm getting better," I muttered. It was amazing to me that everybody, even Quentin, knew my business.

6 "One of my little sisters can already do algebra," he advised me. "I taught her. It's really quite simple."

7 In less than a minute, he'd already pretty much irritated me. "So what do you know about rockets?" I asked him. "Anything?"

8 "I know everything," he replied.

9 He had said it too easily. "Let's hear it, then," I said, doubtfully.

10 He raised one of his bony shoulders in a shrug. "What's in it for me?"

11 "What do you want?"

12 "To help you build the next one."

13 That was a surprise. "If you know so much, why don't you build your own?" I demanded.

14 Quentin built a little church with his hands. “I’ve considered building a rocket for some time, if you must know. Practical reasons, unfortunately, have prevented me from taking action. It takes teamwork to build a rocket, and materials. My observation of you is that you have certain . . . leadership abilities that I do not.” He locked his eyes on me. They were intense, almost like they were capable of shooting rays. “The other boys will follow you,” he said. “And you, being the Coalwood superintendent’s[1] son, can probably get all the materials you need.”

15 His ray-gun eyes made me want to look away, but I didn’t. “What’s your angle?” I demanded.

16 “Ho-ho!” he exclaimed. “The same as you, old chap! If I learn how to build a rocket, I’ll stand a better chance of getting on down at the Cape.”[2]

17 “First you’ve got to go to college,” I reminded him.

18 “I’ll go to college,” he said resolutely. “But it won’t hurt to get some good practical rocket-building experience under my belt.” He put out his hand. “How about it? You want to team up?”

19 It was the best offer I’d gotten since I’d started my rocket-building career, but I was still a little reluctant. I didn’t have much of a reputation at Big Creek, but it was still better than Quentin’s. When I didn’t respond to his hand, he grabbed mine and shook it, big strokes up and down. I hastily pulled my hand away and looked around to see if anybody had noticed. I knew the football boys would accuse me of holding hands with Quentin if any one of them had seen it.

20 “So what do you know?” I demanded, my face flushed with the potential embarrassment of it all.

21 “Calm down, old chap,” he said. “All shall become perfectly clear.” He leaned back and took a deep breath and then began to talk just as if he was reading something straight from a book. “The Chinese are reputed to have invented rocketry. Something called ‘Chinese arrows’ are mentioned in Europe and the Middle East as far back as the thirteenth century. The British used rockets later aboard their warships during the Napoleonic Wars and the War of 1812. That’s where ‘the rocket’s red glare’ comes from in ‘The Star Spangled Banner.’ Then there was the Russian Tsiolkovsky, Goddard the American, and von Braun, of course. Each of them added to the body of rocket knowledge. Tsiolkovsky was a theorist, Goddard applied engineering principles, and—”

22 I stopped him. “I don’t need to know this stuff. I need to know how a rocket works.”

23 Quentin cocked his head. “But that’s so *elementary*. Newton’s third law. For every action, there is an equal and opposite reaction.”

24 I remembered from one science class or another something about Newton, but I couldn’t put my finger on his laws. “How do you know that?”

25 “Read it somewhere.”

26 “Read it *where*?”

[1] *Coalwood superintendent* — mining supervisor

[2] *the Cape* — Cape Canaveral, Florida. In 1950, missile testing began there, and in 1958, after NASA was formed, the agency made the Cape the base of its operations for space exploration.

27 Quentin frowned, disturbed at my attempt to cut through his bull. "A physics book, I suppose," he said stiffly. "Can't exactly say which one. I thumb over to Welch every Saturday to the county library. I tend to pick out random shelves and just read every book on it until I'm done."

. . .

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10 In paragraph 2, what does Quentin's initial reaction to Homer suggest?

A. that Quentin believes he can help Homer
B. that other students are jealous of Quentin
C. that Quentin welcomes Homer's wish to become friends
D. that other students have tried to take advantage of Quentin

11 According to paragraph 14, why has Quentin never built a rocket himself?

A. He is uninterested in that kind of project.
B. He lacks resources for that kind of project.
C. He doubts that building a rocket is possible.
D. He has witnessed the failure of Homer's rocket.

12 In paragraph 20, why is Homer embarrassed?

A. Quentin knows that Homer's rocket exploded.
B. Homer does not want to be seen with Quentin.
C. Quentin knows that algebra is a difficult subject for Homer.
D. Homer does not understand what Quentin is saying about rockets.

13 Which of the following ideas is **most clearly** illustrated by Homer's words and actions?

A. One must be considerate of people who have unusual abilities.

B. One can overcome failure by trying things over and over again.

C. One can learn by reading books and studying a variety of subjects.

D. One must be open to seeking appropriate help to reach one's goals.

14 What does the phrase *expound on* **most likely** mean as it is used in paragraph 1?

A. excel at

B. argue about

C. distract from

D. explain in detail

Question 15 is an open-response question.

- **Read the question carefully.**
- **Explain your answer.**
- **Add supporting details.**
- **Double-check your work.**

Write your answer to question 15 in the space provided in your Student Answer Booklet.

15 Based on the excerpt, explain the opportunities and risks Homer must consider before deciding to ask Quentin for help. Support your answer with relevant and specific details from the excerpt.

English Language Arts

Reading Comprehension: Session 2

DIRECTIONS

This session contains two reading selections with eleven multiple-choice questions and one open-response question. Mark your answers to these questions in the spaces provided in your Student Answer Booklet.

Anton Rosicky, a Czechoslovakian immigrant, owns a farm in nineteenth-century Nebraska. Read the excerpt from the story "Neighbour Rosicky" and answer the questions that follow.

Neighbour Rosicky

by Willa Cather

Students read a selection from "Neighbour Rosicky" and then answered questions 16 through 23 that follow on pages 19 and 20 of this document.

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Due to copyright restrictions, the selection that appeared on this page cannot be released to the public over the Internet. For more information, see the citation on the previous page.

16 Read the sentence from paragraph 1 in the box below.

> When he bought his land, he hadn't the money to buy on High Prairie; so he told his boys, when they grumbled, that if their land hadn't some clay in it, they wouldn't own it at all.

The sentence suggests that Rosicky has encouraged his sons to be

A. realistic about their goals.

B. grateful for what they have.

C. inspired to better their lives.

D. motivated by their difficulties.

17 Read the sentence from paragraph 2 in the box below.

> Over yonder on the hill he could see his own house, crouching low, with the clump of orchard behind and the windmill before, and all down the gentle hill-slope the rows of pale gold cornstalks stood out against the white field.

What does the description in the sentence reveal about Rosicky's attitude?

A. his interest in the success of his crops

B. his pride in the simple beauty of his land

C. his concern about the location of his house

D. his appreciation for the isolation of his home

18 What does the author's description of the snow in paragraph 4 suggest?

A. The snow brings a welcome peace to the land.

B. The snow marks the beginning of a difficult winter.

C. The snow hides the landscape from Rosicky's view.

D. The snow awakens Rosicky's memories of his childhood.

19 What does the shift in setting between paragraphs 4 and 5 suggest?

A. that Rosicky has escaped from the freezing weather outside

B. that Rosicky has returned to the comfortable routines of his life

C. that Rosicky feels anxiety about his recent visit with the doctor

D. that Rosicky experiences restlessness about being confined in the kitchen

20 Based on the descriptive details in paragraph 5, which of the following **best** describes Rosicky's home?

A. formal and strict

B. lively and playful

C. cheerful and warm

D. boring and predictable

21 According to the excerpt, what is his wife's **main** concern when Rosicky reaches home?

A. the state of their farm

B. Rosicky's visit to the doctor

C. the behavior of their children

D. Rosicky's trip through the snow

22 Read the sentences from paragraph 8 in the box below.

> She replied in English, as being somehow the right language for transacting business: "Now what did Doctor Ed say, Anton? You tell me just what."

What does the phrase "transacting business" mean as it is used in the sentences?

A. setting a price for goods

B. discussing a formal topic

C. resolving a disagreement

D. arranging a change in duties

Question 23 is an open-response question.

- **Read the question carefully.**
- **Explain your answer.**
- **Add supporting details.**
- **Double-check your work.**

Write your answer to question 23 in the space provided in your Student Answer Booklet.

23 Based on the excerpt, describe the way Rosicky and his wife communicate with each other and explain what this shows about their relationship. Support your answer with relevant and specific details from the excerpt.

Sylvia Plath's poem "Mirror" is written from an unusual point of view. Read the poem and answer the questions that follow.

MIRROR

I am silver and exact. I have no preconceptions.
Whatever I see I swallow immediately
Just as it is, unmisted by love or dislike.
I am not cruel, only truthful—
The eye of a little god, four-cornered.
Most of the time I meditate on the opposite wall.
It is pink, with speckles. I have looked at it so long
I think it is a part of my heart. But it flickers.
Faces and darkness separate us over and over.

Now I am a lake. A woman bends over me,
Searching my reaches for what she really is.
Then she turns to those liars, the candles or the moon.
I see her back, and reflect it faithfully.
She rewards me with tears and an agitation of hands.
I am important to her. She comes and goes.
Each morning it is her face that replaces the darkness.
In me she has drowned a young girl, and in me an old woman
Rises toward her day after day, like a terrible fish.

—*Sylvia Plath*

24 Who is the speaker in the poem?

A. a lake

B. a fish

C. a mirror

D. a woman

25 Based on lines 1–5, how is the mirror like the "eye of a little god"?

A. It can control lives.

B. It reveals the truth.

C. It loves all things.

D. It can be cruel.

26 How does the second stanza shift the focus of the poem?

A. by focusing on the emotions of the mirror

B. by focusing on the ways the mirror is like a god

C. by focusing on the interaction between a fish and the woman

D. by focusing on the interaction between the mirror and the woman

27 Read lines 13 and 14 in the box below.

> I see her back, and reflect it faithfully. / She rewards me with tears and an agitation of hands.

What is the cause of the woman's behavior?

A. She is angry at being lied to.

B. She is nervous about being watched.

C. She is saddened by her image in the mirror.

D. She is unhappy about the end of a relationship.

English Language Arts

Reading Comprehension: Session 3

DIRECTIONS

This session contains two reading selections with twelve multiple-choice questions and one open-response question. Mark your answers to these questions in the spaces provided in your Student Answer Booklet.

In this excerpt from Among Whales, *the author records his observations of whales and discusses the unusual aspects of doing research on this largest of mammals. Read the excerpt and answer the questions that follow.*

from **Among Whales**
by Roger Payne

Students read a selection from *Among Whales* and then answered questions 28 through 35 that follow on pages 25–27 of this document.

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28 In paragraph 1, what is the **main** purpose of the author's references to the ant and the amoebas and to the ant and the mouse?

A. to show examples of evolutionary theory

B. to show how enjoyable it is to study whales

C. to give an example of the impact of size on animals

D. to illustrate the point that animals are interconnected

29 Based on paragraph 2, why has the author developed an admiration for whales?

A. They live peaceful lives.

B. They are very intelligent.

C. They are an ancient species.

D. They seek friendship with humans.

30 In paragraph 3, why does the author compare doing research on whales to "viewing a whale through a keyhole"?

A. to show that it is difficult to study whales

B. to show that whales are hard to see underwater

C. to show that parts of the whale are impossible to study

D. to show that whales occupy a small space in the ocean

31 In paragraph 3, what does the author mean by an "enigma" that is "undecoded"?

A. a plan that works well

B. a story that entertains us

C. an analysis that proves untrue

D. a puzzle that remains unsolved

32 Based on paragraph 4, why is it crucial that a whale researcher be "deeply patient"?

A. because whale sightings are dependent on chance

B. because whales reveal patterns of behavior over time

C. because whales are too intelligent to reveal their secrets quickly

D. because whales share few behavioral characteristics with other animals

33 Based on paragraph 4, what can be inferred about the word *adagio*?

A. It means "quick."

B. It means "loud."

C. It means "slow."

D. It means "soft."

34 Read the sentence from paragraph 5 in the box below.

> I soon realized that the constraints posed by passive observation can be more challenging than those posed by experimental work.

The word *constraint* is related to the Latin word *restringere*, which means to "bind back." What does the word *constraints* mean as it is used in the sentence?

A. standards

B. questions

C. limitations

D. responsibilities

Question 35 is an open-response question.

- **Read the question carefully.**
- **Explain your answer.**
- **Add supporting details.**
- **Double-check your work.**

Write your answer to question 35 in the space provided in your Student Answer Booklet.

35 Based on the excerpt, explain how the author's descriptions reveal his feelings about whales. Support your answer with relevant and specific information from the excerpt.

In this chapter from Mythology*, Edith Hamilton tells the story of Phaëthon, a boy in search of his father, Helios, the great Sun-god. Read the myth and answer the questions that follow.*

PHAËTHON

from *Mythology* by Edith Hamilton

1 THE palace of the Sun was a radiant place. It shone with gold and gleamed with ivory and sparkled with jewels. Everything without and within flashed and glowed and glittered. It was always high noon there. Shadowy twilight never dimmed the brightness. Darkness and night were unknown. Few among mortals could have long endured that unchanging brilliancy of light, but few had ever found their way thither.

2 Nevertheless, one day a youth, mortal on his mother's side, dared to approach. Often he had to pause and clear his dazzled eyes, but the errand which had brought him was so urgent that his purpose held fast and he pressed on, up to the palace, through the burnished doors, and into the throne-room where surrounded by a blinding, blazing splendor the Sun-god sat. There the lad was forced to halt. He could bear no more.

3 Nothing escapes the eyes of the Sun. He saw the boy instantly and he looked at him very kindly. "What brought you here?" he asked. "I have come," the other answered boldly, "to find out if you are my father or not. My mother said you were, but the boys at school laugh when I tell them I am your son. They will not believe me. I told my mother and she said I had better go and ask you." Smiling, the Sun took off his crown of burning light so that the lad could look at him without distress. "Come here, Phaëthon," he said. "You are my son. Clymene told you the truth. I expect you will not doubt my word too? But I will give you a proof. Ask anything you want of me and you shall have it. I call the Styx to be witness to my promise, the river of the oath of the gods."

4 No doubt Phaëthon had often watched the Sun riding through the heavens and had told himself with a feeling, half awe, half excitement, "It is my father up there." And then he would wonder what it would be like to be in that chariot, guiding the steeds along that dizzy course, giving light to the world. Now at his father's words this wild dream had become possible. Instantly he cried, "I choose to take your place, Father. That is the only thing I want. Just for a day, a single day, let me have your car to drive."

5 The Sun realized his own folly. Why had he taken that fatal oath and bound himself to give in to anything that happened to enter a boy's rash young head? "Dear lad," he said, "this is the only thing I would have refused you. I know I cannot refuse. I have sworn by the Styx. I must yield if you persist. But I do not believe you will. Listen while I tell you what this is you want. You are Clymene's son as well as mine. You are mortal and no mortal could drive my chariot. Indeed, no god except myself can do that. The ruler of the gods cannot. Consider the road. It rises up from the sea so steeply that the horses can hardly climb it, fresh though they are in the early morning. In midheaven it is so high that even I do not like to look down. Worst of all is the descent, so precipitous that the Sea-gods waiting to receive me wonder how I can avoid falling headlong. To guide the horses, too, is a perpetual struggle. Their fiery spirits grow hotter as they climb and they scarcely suffer my control. What would they do with you?

6 "Are you fancying that there are all sorts of wonders up there, cities of the gods full of beautiful things? Nothing of the kind. You will have to pass beasts, fierce beasts of prey, and they are all that you will see. The Bull, the Lion, the Scorpion, the great Crab, each will try to harm you. Be persuaded. Look around you. See all the goods the rich world holds. Choose from them your heart's desire and it shall be yours. If what you want is to be proved my son, my fears for you are proof enough that I am your father."

7 But none of all this wise talk meant anything to the boy. A glorious prospect opened before him. He saw himself proudly standing in that wondrous car, his hands triumphantly guiding those steeds which Jove himself could not master. He did not give a thought to the dangers his father detailed. He felt not a quiver of fear, not a doubt of his own powers. At last the Sun gave up trying to dissuade him. It was hopeless, as he saw. Besides, there was no time. The moment for starting was at hand. Already the gates of the east glowed purple, and Dawn had opened her courts full of rosy light. The stars were leaving the sky; even the lingering morning star was dim.

8 There was need for haste, but all was ready. The seasons, the gatekeepers of Olympus, stood waiting to fling the doors wide. The horses had been bridled and yoked to the car. Proudly and joyously Phaëthon mounted it and they were off. He had made his choice. Whatever came of it he could not change now. Not that he wanted to in that first exhilarating rush through the air, so swift that the East Wind was outstripped and left far behind. The horses' flying feet went through the low-banked clouds near the ocean as through a thin sea mist and then up and up in the clear air, climbing the height of heaven. For a few ecstatic moments Phaëthon felt himself the Lord of the Sky. But suddenly there was a change. The chariot was swinging wildly to and fro; the pace was faster; he had lost control. Not he, but the horses were directing the course. That light weight in the car, those feeble hands clutching the reins, had told them their own driver was not there. They were the masters then. No one else could command them. They left the road and rushed where they chose, up, down, to the right, to the left. They nearly wrecked the chariot against the Scorpion; they brought up short and almost ran into the Crab. By this time the poor charioteer was half fainting with terror, and he let the reins fall.

9 That was the signal for still more mad and reckless running. The horses soared up to the very top of the sky and then, plunging headlong down, they set the world on fire. The highest mountains were the first to burn, Ida and Helicon, where the Muses dwell, Parnassus, and heaven-piercing Olympus. Down their slopes the flame ran to the low-lying valleys and the dark forest lands, until all things everywhere were ablaze. The springs turned into steam; the rivers shrank. It is said that it was then the Nile fled and hid his head, which still is hidden.

10 In the car Phaëthon, hardly keeping his place there, was wrapped in thick smoke and heat as if from a fiery furnace. He wanted nothing except to have this torment and terror ended. He would have welcomed death. Mother Earth, too, could bear no more. She uttered a great cry which reached up to the gods. Looking down from Olympus they saw that they must act quickly if the world was to be saved. Jove seized his thunderbolt and hurled it at the rash, repentant driver. It struck him dead, shattered the chariot, and made the maddened horses rush down into the sea.

11 Phaëthon all on fire fell from the car through the air to the earth. The mysterious river Eridanus, which no mortal eyes have ever seen, received him and put out the flames and cooled the body. The naiads, in pity for him, so bold and so young to die, buried him and carved upon the tomb:—

Here Phaëthon lies who drove the Sun-god's car.
Greatly he failed, but he had greatly dared.

12 His sisters, the Heliades, the daughters of Helios, the Sun, came to his grave to mourn for him. There they were turned into poplar trees, on the bank of the Eridanus,

Where sorrowing they weep into the stream forever.
And each tear as it falls shines in the water
A glistening drop of amber.

36 In paragraph 3, why does the Sun take off his crown?

A. The Sun wants Phaëthon to wear the crown.
B. The Sun feels Phaëthon is scared of him.
C. The crown is part of Phaëthon's wish.
D. The light is hurting Phaëthon's eyes.

37 What is the "road" that is described in paragraph 5?

A. the way to the palace of the Sun
B. the days when the Sun shines
C. the spot where the Sun rises
D. the path the Sun follows

38 Based on paragraph 7, what character trait **mainly** motivates Phaëthon to ignore his father and drive the chariot?

A. anger
B. generosity
C. arrogance
D. intelligence

39 Based on paragraph 11, what does the carving on Phaëthon's tomb suggest?

A. He is remembered for more than just his foolishness.
B. His sisters are being punished for his actions.
C. His father feels responsible for his failure.
D. He is respected by the gods for his skill.

40 What is the meaning of *dissuade* as it is used in paragraph 7?

A. to help someone who is struggling
B. to punish someone for disobedience
C. to prepare someone for an experience
D. to advise someone against a course of action

English Language Arts
Reading Comprehension Retest
March 2008 Released Items:
Reporting Categories, Standards, and Correct Answers*

Item No.	Page No.	Reporting Category	Standard	Correct Answer (MC)*
1	10	*Reading and Literature*	15	A
2	10	*Reading and Literature*	15	D
3	10	*Reading and Literature*	8	D
4	10	*Reading and Literature*	13	C
5	10	*Reading and Literature*	8	D
6	11	*Reading and Literature*	8	A
7	11	*Reading and Literature*	13	B
8	11	*Language*	4	C
9	12	*Reading and Literature*	13	
10	15	*Reading and Literature*	13	D
11	15	*Reading and Literature*	8	B
12	15	*Reading and Literature*	13	B
13	16	*Reading and Literature*	11	D
14	16	*Language*	4	D
15	16	*Reading and Literature*	13	
16	19	*Reading and Literature*	12	B
17	19	*Reading and Literature*	12	B
18	19	*Reading and Literature*	15	A
19	19	*Reading and Literature*	12	B
20	19	*Reading and Literature*	12	C
21	20	*Reading and Literature*	8	B
22	20	*Language*	4	B
23	20	*Reading and Literature*	12	
24	22	*Reading and Literature*	14	C
25	22	*Reading and Literature*	14	B
26	22	*Reading and Literature*	14	D
27	22	*Reading and Literature*	14	C
28	25	*Reading and Literature*	13	C
29	25	*Reading and Literature*	13	A
30	25	*Reading and Literature*	13	A
31	25	*Reading and Literature*	13	D
32	26	*Reading and Literature*	13	B
33	26	*Language*	4	C
34	26	*Language*	4	C
35	27	*Reading and Literature*	15	
36	30	*Reading and Literature*	8	D
37	30	*Reading and Literature*	16	D
38	31	*Reading and Literature*	16	C
39	31	*Reading and Literature*	16	A
40	31	*Language*	4	D

*****Answers are provided here for multiple-choice items only. Each open-response item has its own set of scoring guidelines, which allow for valid alternate interpretations and responses.

III. Mathematics Retest

Mathematics Retest

The Mathematics Retest was based on learning standards in the Massachusetts *Mathematics Curriculum Framework* (2000). The *Framework* identifies five major content strands, listed below.

- Number Sense and Operations
- Patterns, Relations, and Algebra
- Geometry
- Measurement
- Data Analysis, Statistics, and Probability

The grades 9–10 learning standards for these strands appear on pages 72–75 of the *Mathematics Curriculum Framework*, which is available on the Department Web site at www.doe.mass.edu/frameworks/current.html.

In Test Item Analysis Reports, Mathematics retest results are reported under five MCAS reporting categories, which are identical to the five *Mathematics Curriculum Framework* content strands listed above.

Test Sessions

The Mathematics Retest included two separate test sessions, which were administered on consecutive days. Each session included multiple-choice and open-response items. Session 1 also included short-answer questions.

Reference Materials and Tools

Each student taking the Mathematics Retest was provided with a Grade 10 Mathematics Reference Sheet and was allowed to refer to it at any time during testing. A copy of the reference sheet follows the final question in this chapter.

During session 2, each student had sole access to a calculator with at least four functions and a square root key. Calculator use was not allowed during session 1.

The use of bilingual word-to-word dictionaries was allowed for limited English proficient students only during both Mathematics retest sessions. No other reference tools or materials were allowed.

Cross-Reference Information

The table at the conclusion of this chapter indicates each item's reporting category and the *Framework* learning standard it assesses. The correct answers for multiple-choice and short-answer items are also displayed in the table.

Mathematics

SESSION 1

You may use your reference sheet during this session.
*You may **not** use a calculator during this session.*

DIRECTIONS

This session contains fourteen multiple-choice questions, four short-answer questions, and three open-response questions. Mark your answers to these questions in the spaces provided in your Student Answer Booklet.

1 What is the value of the expression below?

$$18 \div 3 + 6 \cdot 4 - 3$$

A. 2
B. 5
C. 27
D. 45

2 Which of the following is equivalent to the expression below?

$$(6n^2 + 3n + 2) + (3n^2 - 7n - 5)$$

A. $5n^2 - 3$
B. $19n^2 + 7$
C. $9n^2 - 4n - 3$
D. $9n^2 + 10n + 7$

3 The table below shows the shoe sizes of the students in a dance class and the number of students who had each shoe size.

Dance Class Shoe Sizes

Shoe Size	Number of Students
$5\frac{1}{2}$	1
6	2
$6\frac{1}{2}$	1
7	1
$7\frac{1}{2}$	2
8	1
$8\frac{1}{2}$	3

What is the mode of the shoe sizes of these students?

A. 6

B. 7

C. $7\frac{1}{2}$

D. $8\frac{1}{2}$

4 The area of a square patio is between 150 and 175 square feet. Which of the following could be the length of each side of the square patio?

A. 12 feet

B. 13 feet

C. 14 feet

D. 15 feet

5 What is the value of the expression below?

$$-|10 - 15|$$

A. -25

B. -5

C. 5

D. 25

6 What is the ***x*-intercept** of the line that represents the equation below?

$$3x + y = -6$$

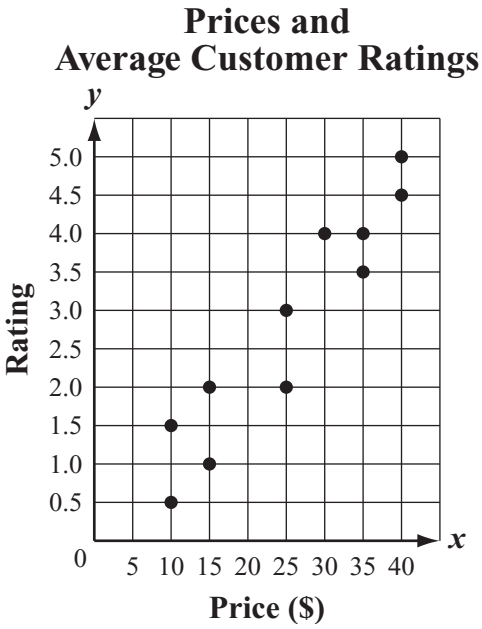
A. 6
B. 2
C. -2
D. -6

7 What are the solutions of the quadratic equation below?

$$x^2 + 5x - 6 = 0$$

A. $x = -6$ or $x = 1$
B. $x = 6$ or $x = -1$
C. $x = -2$ or $x = 3$
D. $x = 2$ or $x = -3$

8 Karl made the scatterplot below of the price and average customer rating for each of 11 computer games.



Based on the scatterplot, which of the following statements is true?

A. In general, as the prices increase, the ratings increase.
B. In general, as the prices increase, the ratings decrease.
C. The price of a game and its rating do not appear to be related to each other.
D. No matter what the prices were, each game received approximately the same rating.

9 Ladonna's group built a crate to pack a large machine. The crate is in the shape of a cube. The volume of the crate is 1600 cubic feet.

Which of the following is closest to the length of an edge of the crate?

A. 10 feet
B. 12 feet
C. 16 feet
D. 20 feet

10 What is the value of the expression below?

$$-3(7-5)^3+4$$

A. -14
B. -20
C. -22
D. -28

11 The employees at Tony's company worked a total of 489,623 hours last year. The total amount paid to the employees was $13,709,444.

Which of the following is closest to the average amount paid per hour of work?

A. $10
B. $20
C. $30
D. $40

12 The number of appointments originally scheduled at an animal hospital each business day for one week is shown in the table below.

Animal Hospital Appointments

Day	Mon.	Tue.	Wed.	Thu.	Fri.
Number of Appointments Scheduled	5	4	2	7	12

After making the original schedule, the hospital manager had to change some appointments. In the new schedule, the hospital manager moved 5 of the original Friday appointments to Wednesday.

Which of the following statements is true about the new schedule as compared to the original schedule?

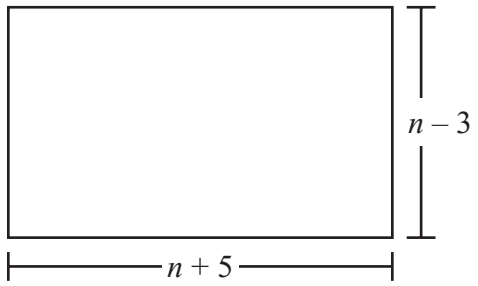
A. The mean number of appointments per day decreased.

B. The mean number of appointments per day increased.

C. The median number of appointments per day decreased.

D. The median number of appointments per day increased.

13 A rectangle and expressions representing its dimensions, in inches, are shown below.



Which of the following represents the area, in square inches, of the rectangle?

A. $n^2 + 8n - 15$

B. $n^2 + 2n - 15$

C. $n^2 - 2n - 15$

D. $n^2 - 8n - 15$

14 At the Pumpkin Festival, people can try to guess the weight of a large pumpkin. To win a prize, a person must guess a weight in pounds, w, that satisfies the inequality below.

$$|w - 120| \leq 2.5$$

For which of the following guesses would a person **not** win a prize?

A. 116 pounds

B. 118 pounds

C. 120 pounds

D. 122 pounds

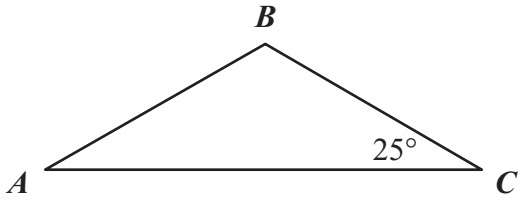
Questions 15 and 16 are short-answer questions. Write your answers to these questions in the boxes provided in your Student Answer Booklet. Do not write your answers in this test booklet. You may do your figuring in the test booklet.

15 The first four terms of Angie's pattern are shown below.

5, 7, 11, 19, . . .

Each term after the first term is found by multiplying the previous term by 2 and then subtracting 3. What will be the **sixth** term in Angie's pattern?

16 In $\triangle ABC$ shown below, $AB = BC$, and $m\angle C = 25°$.



What is $m\angle B$?

Question 17 is an open-response question.

- **BE SURE TO ANSWER AND LABEL ALL PARTS OF THE QUESTION.**
- **Show all your work (diagrams, tables, or computations) in your Student Answer Booklet.**
- **If you do the work in your head, explain in writing how you did the work.**

Write your answer to question 17 in the space provided in your Student Answer Booklet.

17 Mei is preparing samples of wood for a project. She made the table below showing the weights, in ounces, of the first three samples.

Weights of Wood Samples

Sample Number (n)	Weight in Ounces (W)
1	6
2	10
3	14

Mei will make all her samples so that the linear pattern of weights in the table continues.

a. What is the weight, in ounces, of sample 4? Show or explain how you got your answer.

b. Write a linear equation that can be used to determine the weight, W, in ounces, of sample number n.

c. What is the weight, in ounces, of sample 13? Show or explain how you got your answer.

d. The weight of a sample is 102 ounces. What is its sample number? Show or explain how you got your answer.

Questions 18 and 19 are short-answer questions. Write your answers to these questions in the boxes provided in your Student Answer Booklet. Do not write your answers in this test booklet. You may do your figuring in the test booklet.

18 For a class project, Devon went to a small wetland area at the same time each day for 14 days to count the number of birds she could see. Devon created the stem-and-leaf plot below to show the number of birds she saw on each of the 14 days.

Number of Birds Devon Saw Each Day

2	3 4 9
3	0 3 7 9
4	5 5 8
5	0 1 4
6	1

Key
2 | 4 represents 24

Based on the stem-and-leaf plot, what is the median number of birds per day that Devon saw?

19 The sum of Claudia's age and Pedro's age is 14 years. Claudia is older than Pedro, and the difference of their ages is 6 years.

The system of equations below represents this situation, where c represents Claudia's age and p represents Pedro's age.

$$c + p = 14$$
$$c - p = 6$$

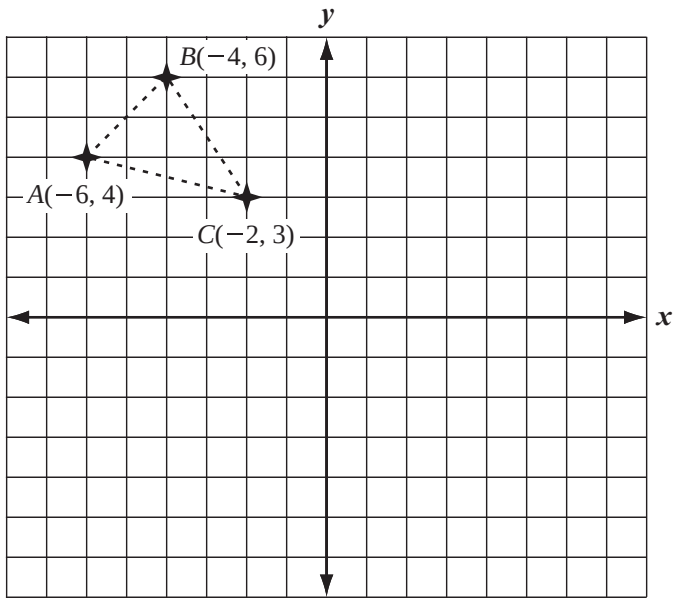
What is **Claudia's** age, in years?

Questions 20 and 21 are open-response questions.

- **BE SURE TO ANSWER AND LABEL ALL PARTS OF EACH QUESTION.**
- **Show all your work (diagrams, tables, or computations) in your Student Answer Booklet.**
- **If you do the work in your head, explain in writing how you did the work.**

Write your answer to question 20 in the space provided in your Student Answer Booklet.

20 Students placed a coordinate grid over a star map and used constellations to practice transformations. The constellation triangle shown below has 3 stars, located at points *A*, *B*, and *C* on the grid.



a. An image of point *C* is obtained by translating point *C* a total of 8 units to the right. What are the coordinates of the image?

On the grid in your Student Answer Booklet, copy the *x*-axis, *y*-axis, and constellation triangle shown above. Be sure to label points *A*, *B*, and *C*.

b. Plot and label the vertices of $\triangle A'B'C'$, the reflection of $\triangle ABC$ over the *x*-axis.

c. On the same grid, plot and label the vertices of $\triangle A''B''C''$, the rotation of $\triangle A'B'C'$ 90 degrees counterclockwise about the origin.

Write your answer to question 21 in the space provided in your Student Answer Booklet.

21 Gerald and Yolanda bought sleeping bags for a hiking club that went on two camping trips last summer. Gerald bought the sleeping bags for the first camping trip, and Yolanda bought additional sleeping bags for the second camping trip. There were two sizes of sleeping bags: adult and youth.

- Each adult sleeping bag cost $80.
- Each youth sleeping bag cost $60.

a. Gerald spent a total of $660 for all the sleeping bags he bought. He bought 3 youth sleeping bags. How many adult sleeping bags did he buy? Show or explain how you got your answer.

For parts (b), (c), and (d), define x and y as follows:

- x = the number of adult sleeping bags that Yolanda bought
- y = the number of youth sleeping bags that Yolanda bought

b. Yolanda bought a total of 20 sleeping bags. Write an equation in terms of x and y that represents the total number of sleeping bags that Yolanda bought.

c. Yolanda spent a total of $1460 for sleeping bags. Write an equation in terms of x and y that represents the total amount of money that Yolanda spent for sleeping bags.

d. Using your two equations from parts (b) and (c) as a system of equations, determine the following:

- the number of adult sleeping bags that Yolanda bought
- the number of youth sleeping bags that Yolanda bought

Show or explain how you got each of your answers.

Mathematics

SESSION 2

You may use your reference sheet during this session.
You may use a calculator during this session.

DIRECTIONS

This session contains eighteen multiple-choice questions and three open-response questions. Mark your answers to these questions in the spaces provided in your Student Answer Booklet.

22 The image of the point $(-4, -2)$ after a translation is the point (0, 0). The point (0, 0) is then translated in the same way that the point $(-4, -2)$ was translated.

What point is the image of the point (0, 0) after it was translated?

A. $(-4, 2)$

B. $(0, -2)$

C. (4, 2)

D. (4, 0)

23 Tina's car uses 5 gallons of gas to travel 160 miles. At this rate, what is the number of gallons of gas that Tina's car will use to travel 256 miles?

A. 3

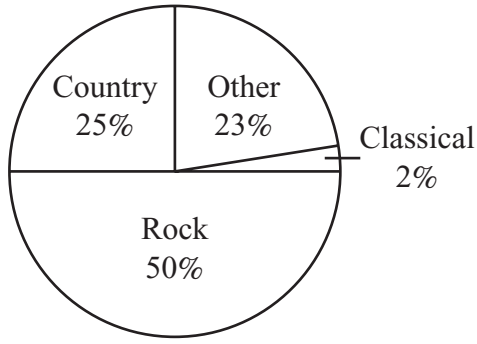
B. 8

C. 32

D. 51

24 Phillip surveyed students about their musical preferences. Each student selected one type of music from a list. The circle graph below shows the percent of students preferring each type of music.

Students' Musical Preferences



Phillip surveyed 500 students in all. What is the total number of students who prefer country music or rock music?

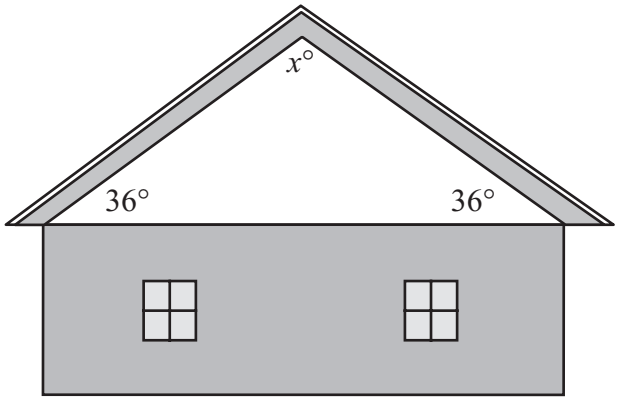
A. 375

B. 250

C. 125

D. 75

25 The triangle in the picture below represents part of a house.



Based on the angle measures in the picture, what is the value of x?

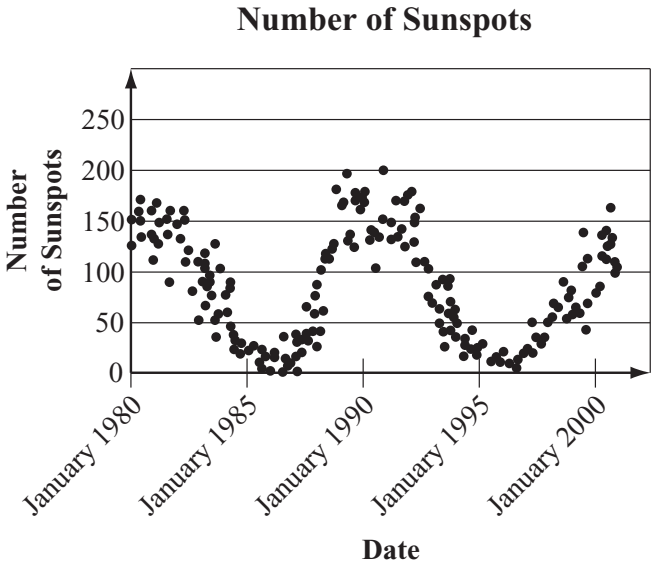
A. 54

B. 72

C. 108

D. 144

26 A sunspot is a dark area on the surface of the Sun that appears and disappears frequently. The scatterplot below shows the number of sunspots that appeared during each month from January 1980 through December 2000.



Which of the following best represents the range of the number of sunspots for the data shown in the scatterplot?

A. 50

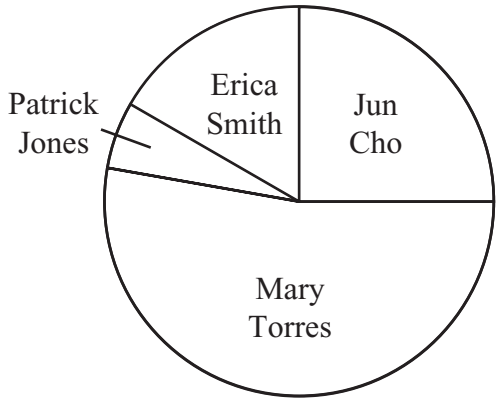
B. 100

C. 150

D. 200

27 A town had an election for mayor. There were four candidates: Jun Cho, Mary Torres, Patrick Jones, and Erica Smith. The circle graph below shows the proportion of votes each candidate received.

Proportion of Votes Each Candidate Received



The circle graph most likely represents which of the following tables?

A.

Number of Votes Each Candidate Received

Name	Number of Votes
Jun Cho	1215
Mary Torres	4039
Patrick Jones	1187
Erica Smith	1204

B.

Number of Votes Each Candidate Received

Name	Number of Votes
Jun Cho	1911
Mary Torres	4035
Patrick Jones	425
Erica Smith	1274

C.

Number of Votes Each Candidate Received

Name	Number of Votes
Jun Cho	1269
Mary Torres	3995
Patrick Jones	434
Erica Smith	1947

D.

Number of Votes Each Candidate Received

Name	Number of Votes
Jun Cho	2013
Mary Torres	3822
Patrick Jones	430
Erica Smith	1380

28 The perimeter of a square is 28 meters. What is the area of the square?

A. 196 square meters

B. 112 square meters

C. 56 square meters

D. 49 square meters

29 Several families determined the cost of building a vacation cabin together. They calculated that if 5 families equally share the cost of building the cabin, each family will pay $12,000.

If 8 families equally share the cost of building the same cabin, which of the following is the amount of money each family will pay?

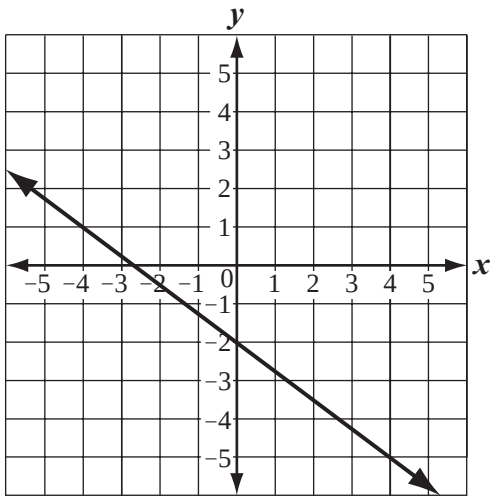
A. $1,500

B. $2,400

C. $7,500

D. $19,200

30 Which of the following best represents the slope of the line graphed below?



A. $-\frac{4}{3}$

B. $-\frac{3}{4}$

C. $\frac{3}{4}$

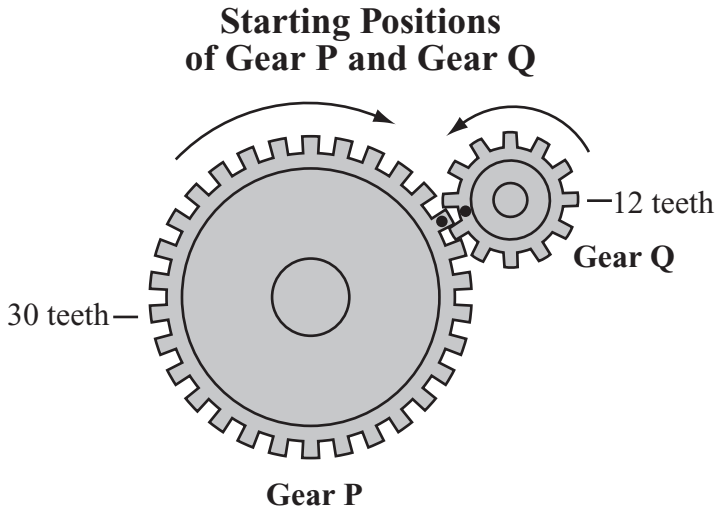
D. $\frac{4}{3}$

Question 31 is an open-response question.

- **BE SURE TO ANSWER AND LABEL ALL PARTS OF THE QUESTION.**
- **Show all your work (diagrams, tables, or computations) in your Student Answer Booklet.**
- **If you do the work in your head, explain in writing how you did the work.**

Write your answer to question 31 in the space provided in your Student Answer Booklet.

31 Gear P and Gear Q are circular disks with teeth on their outer edges. A dot is marked on each gear to indicate its starting position, as shown below.



As Gear P rotates clockwise, its teeth engage with Gear Q's teeth. This makes Gear Q rotate counterclockwise. A gear makes 1 full rotation when it rotates in 1 complete circle and returns to its starting position.

a. In the time that it takes Gear P to make 1 full rotation, how many rotations will Gear Q make? Show or explain how you got your answer.

b. In the time that it takes Gear Q to make 1 full rotation, how many rotations will Gear P make? Show or explain how you got your answer.

c. Both gears began in their starting positions and then rotated until the first time that both were again in their starting positions at the same time.

   - How many rotations did Gear P make?
   - How many rotations did Gear Q make?

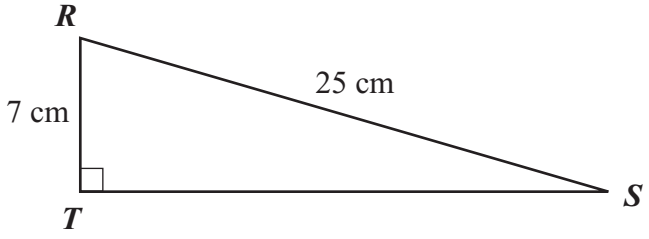
   Show or explain how you got each of your answers.

Mark your answers to multiple-choice questions 32 through 40 in the spaces provided in your Student Answer Booklet. Do not write your answers in this test booklet. You may do your figuring in the test booklet.

32 The ratio of silver coins to gold coins in Rick's collection of 16 coins was 3:1. When he graduated from high school, he received 4 additional gold coins as gifts. What percent of his collection consisted of gold coins then?

A. 20%
B. 30%
C. 40%
D. 50%

33 Kalei is making a quilt. She cut fabric in the shape of the right triangle shown in the diagram below.



Based on the dimensions in the diagram, what is the length of $\overline{ST}$?

A. 18 cm
B. 20 cm
C. 24 cm
D. 26 cm

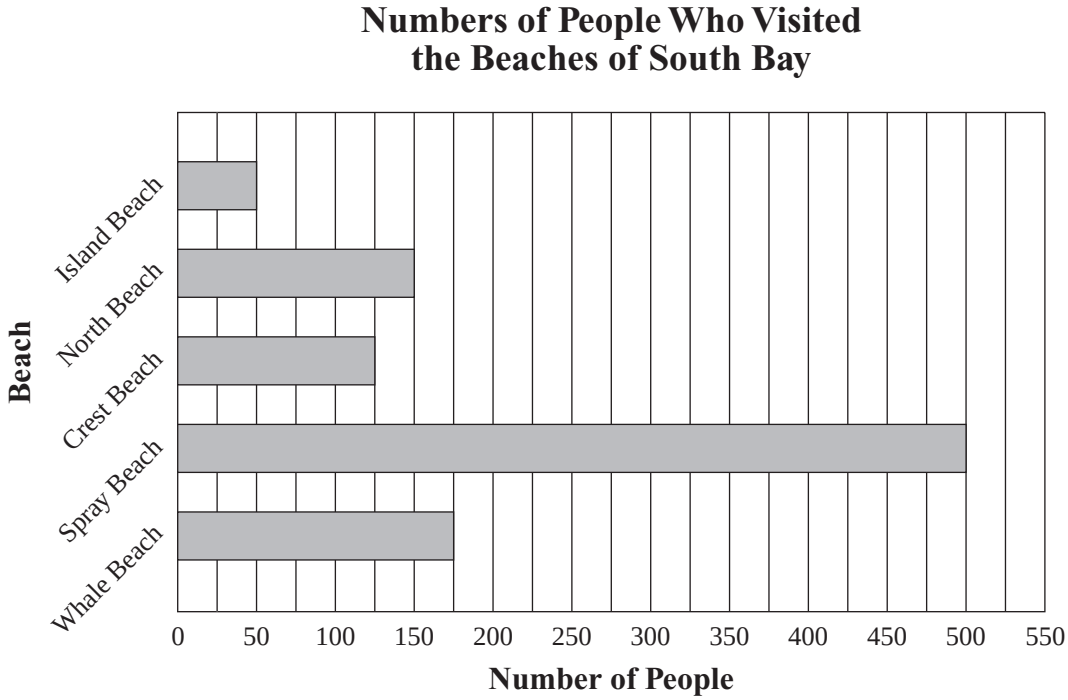
34 Which of the following is true about a line with undefined slope?

A. It is a vertical line.
B. It is a horizontal line.
C. It slopes upward from left to right.
D. It slopes downward from left to right.

35 The height of a right circular cylinder is 15 feet, and the diameter of each base is 6 feet. Which of the following is closest to the lateral surface area of the cylinder?

A. 791 square feet
B. 565 square feet
C. 340 square feet
D. 283 square feet

36 The numbers of people who visited the five beaches of South Bay one day last summer are represented by the bar graph below.



Each person visited only one beach that day. Of all of the people visiting the beaches of South Bay that day, which of the following best represents the percent who visited either Spray Beach or North Beach?

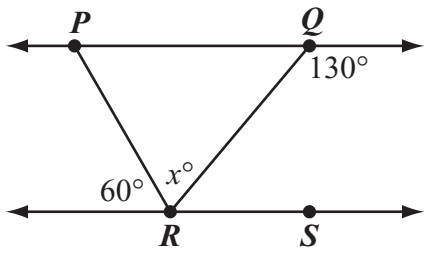
A. 15%

B. 35%

C. 50%

D. 65%

37 In the diagram below, $\overleftrightarrow{PQ}$ and $\overleftrightarrow{RS}$ are parallel.



Based on the angle measures in the diagram, what is the value of x?

A. 70

B. 60

C. 50

D. 40

38 The surface area of a spherical beach volleyball is approximately 1387 square centimeters. Which of the following is closest to the radius, in centimeters, of the volleyball?

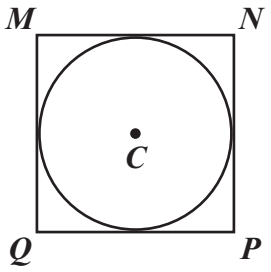
A. 6.9

B. 10.5

C. 18.6

D. 21.0

39 Circle C is inscribed in square $MNPQ$, as shown below.



The length of $\overline{MN}$ is 20 inches. Which of the following is closest to the circumference of circle C?

A. 314 inches

B. 126 inches

C. 80 inches

D. 63 inches

40 The width of a rectangular room is 6 feet less than its length. The area of the room is 135 square feet.

What is the **length**, in feet, of the room?

A. 9

B. 15

C. 21

D. 27

Questions 41 and 42 are open-response questions.

- **BE SURE TO ANSWER AND LABEL ALL PARTS OF EACH QUESTION.**
- **Show all your work (diagrams, tables, or computations) in your Student Answer Booklet.**
- **If you do the work in your head, explain in writing how you did the work.**

Write your answer to question 41 in the space provided in your Student Answer Booklet.

41 For her architecture class, Tina is writing a report on 15 buildings of historical interest. She made the following list of the heights, in feet, of the 15 buildings.

36, 17, 34, 17, 20, 28, 25, 34, 22, 46, 33, 17, 19, 15, 21

a. What is the range, in feet, of the heights in Tina's list? Show or explain how you got your answer.

b. In your Student Answer Booklet, display the building heights in Tina's list in a stem-and-leaf plot. Be sure your plot has a title and a key.

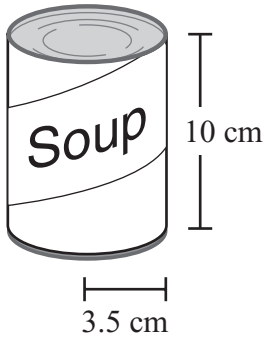
c. What is the median, in feet, of the heights in Tina's list? Show or explain how you got your answer.

d. What is the mode, in feet, of the heights in Tina's list? Show or explain how you got your answer.

e. Tina decided to delete the 2 tallest buildings from her report. For the heights of the remaining 13 buildings, which of the measures that you found in parts (a), (c), and (d) will change, and which measures will stay the same? Explain your reasoning.

Write your answer to question 42 in the space provided in your Student Answer Booklet.

42 The soup can shown below is in the shape of a right circular cylinder. Its height is 10 centimeters, and the radius of each base is 3.5 centimeters.



a. What is the area, in square centimeters, of the circular top of the soup can? Show your work.

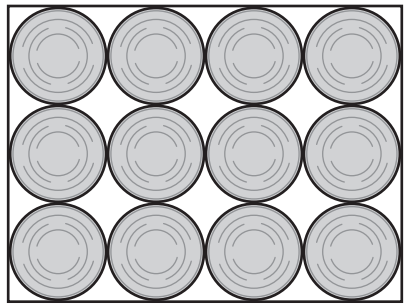
b. What is the volume, in cubic centimeters, of the soup can? Show your work.

Twelve soup cans like the one shown above are in a box that is in the shape of a right rectangular prism.

- The heights of the soup cans are equal to the height of the box.
- The sides of the cans touch each other.
- The sides of ten of the cans touch the sides of the box.

A top view of a full box, showing the circular tops of the cans within the box, is shown below.

Top View of Box of Soup Cans



c. What was the volume, in cubic centimeters, of the box when it was empty? Show or explain how you got your answer.

d. Using your answers from parts (b) and (c), determine the volume, in cubic centimeters, of the space inside the full box that is **not** occupied by the cans. Show or explain how you got your answer.

Massachusetts Comprehensive Assessment System
Grade 10 Mathematics Reference Sheet

AREA FORMULAS

square ..... $A = s^2$

rectangle ..... $A = bh$

parallelogram ..... $A = bh$

triangle ..... $A = \frac{1}{2}bh$

trapezoid ..... $A = \frac{1}{2}h(b_1 + b_2)$

circle ..... $A = \pi r^2$

LATERAL SURFACE AREA FORMULAS

right rectangular prism ..... $LA = 2(hw) + 2(lh)$

right circular cylinder ..... $LA = 2\pi rh$

right circular cone ..... $LA = \pi r\ell$
(ℓ = slant height)

right square pyramid ..... $LA = 2s\ell$
(ℓ = slant height)

TOTAL SURFACE AREA FORMULAS

cube ..... $SA = 6s^2$

right rectangular prism ..... $SA = 2(lw) + 2(hw) + 2(lh)$

sphere ..... $SA = 4\pi r^2$

right circular cylinder ..... $SA = 2\pi r^2 + 2\pi rh$

right circular cone ..... $SA = \pi r^2 + \pi r\ell$
(ℓ = slant height)

right square pyramid ..... $SA = s^2 + 2s\ell$
(ℓ = slant height)

VOLUME FORMULAS

cube ..... $V = s^3$
(s = length of an edge)

right rectangular prism ..... $V = lwh$

OR

$V = Bh$
(B = area of a base)

sphere ..... $V = \frac{4}{3}\pi r^3$

right circular cylinder ..... $V = \pi r^2 h$

right circular cone ..... $V = \frac{1}{3}\pi r^2 h$

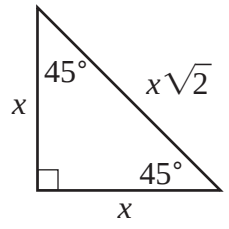
right square pyramid ..... $V = \frac{1}{3}s^2 h$

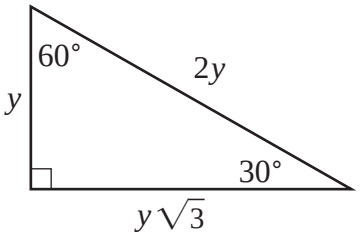
CIRCLE FORMULAS

$C = 2\pi r$

$A = \pi r^2$

SPECIAL RIGHT TRIANGLES





Mathematics Retest
March 2008 Released Items:
Reporting Categories, Standards, and Correct Answers*

Item No.	Page No.	Reporting Category	Standard	Correct Answer (MC/SA)*
1	35	*Number Sense and Operations*	10.N.2	C
2	35	*Patterns, Relations, and Algebra*	10.P.3	C
3	36	*Data Analysis, Statistics, and Probability*	10.D.1	D
4	36	*Number Sense and Operations*	10.N.3	B
5	36	*Number Sense and Operations*	10.N.2	B
6	37	*Patterns, Relations, and Algebra*	10.P.2	C
7	37	*Patterns, Relations, and Algebra*	10.P.5	A
8	37	*Data Analysis, Statistics, and Probability*	10.D.1	A
9	38	*Number Sense and Operations*	10.N.3	B
10	38	*Number Sense and Operations*	10.N.2	B
11	38	*Number Sense and Operations*	10.N.4	C
12	39	*Data Analysis, Statistics, and Probability*	10.D.1	D
13	40	*Patterns, Relations, and Algebra*	10.P.3	B
14	40	*Number Sense and Operations*	10.N.2	A
15	41	*Patterns, Relations, and Algebra*	10.P.1	67
16	41	*Geometry*	10.G.6	130°
17	42	*Patterns, Relations, and Algebra*	10.P.7	
18	43	*Data Analysis, Statistics, and Probability*	10.D.1	42
19	43	*Patterns, Relations, and Algebra*	10.P.8	10
20	44	*Geometry*	10.G.9	
21	45	*Patterns, Relations, and Algebra*	10.P.8	
22	46	*Geometry*	10.G.9	C
23	46	*Number Sense and Operations*	8.N.3	B
24	46	*Data Analysis, Statistics, and Probability*	10.D.1	A
25	47	*Geometry*	10.G.5	C
26	47	*Data Analysis, Statistics, and Probability*	10.D.1	D
27	48	*Data Analysis, Statistics, and Probability*	10.D.1	B
28	49	*Measurement*	10.M.1	D
29	49	*Patterns, Relations, and Algebra*	10.P.7	C
30	49	*Patterns, Relations, and Algebra*	10.P.2	B
31	50	*Number Sense and Operations*	8.N.5	
32	51	*Number Sense and Operations*	8.N.3	C
33	51	*Geometry*	10.G.5	C
34	51	*Patterns, Relations, and Algebra*	10.P.2	A
35	51	*Measurement*	10.M.2	D
36	52	*Data Analysis, Statistics, and Probability*	10.D.1	D
37	53	*Geometry*	10.G.3	A
38	53	*Measurement*	10.M.2	B
39	53	*Measurement*	10.M.1	D
40	53	*Patterns, Relations, and Algebra*	10.P.7	B
41	54	*Data Analysis, Statistics, and Probability*	10.D.1	
42	55	*Measurement*	10.M.2	

***** Answers are provided here for multiple-choice items and short-answer items only. Each open-response item has its own set of scoring guidelines, which allow for valid alternate interpretations and responses.