

Table of Contents

Section I: Verbal Reasoning	3
Section II: Grammar/Writing	21
Section III: Quantitative Reasoning	.38

Each section will have a corresponding time limit. Do not begin the next section until told to do so. The times for each section are:

Verbal Reasoning: 45 minutes Grammar/Writing: 40 minutes Quantitative Reasoning: 50 minutes

If you finish a section early, you may use the remaining time to check your work, but only on that section. If you have any questions, raise your hand and ask your test proctor.

Section I: Verbal Reasoning

Instructions:

You will have 45 minutes to complete Section I. Read each passage and answer the corresponding questions. 10 questions will follow each of the 4 passages, for a total of 40 questions. Choose your answer based on the evidence given in the passage; no outside knowledge is required.

The final two questions for each passage will be analogy questions. Use your knowledge of the passage and the relationships demonstrated within it to arrive at your answer and complete each analogy.

Literature

This passage is adapted from Leo Tolstoy's "The Young Tsar," written around 1894.

- I The young tsar had just ascended the throne. For five weeks he had worked without stopping, in the way that tsars are accustomed to work. He had been attending to reports, signing papers, receiving ambassadors and high officials who came to be presented to him, and reviewing troops.
- ¶2 He was tired, and as a traveler exhausted by heat and thirst longs for water and rest, so he longed for a few free hours to spend like an ordinary human being with his young, clever, and beautiful wife, to whom he had been married only a month before.
- ¶3 Finally, on Christmas Eve, the young tsar took the evening off to rest. He heaved a sigh of relief, stretched himself, and went back to his apartments to take off his uniform. His young wife told him that she would join him soon.
- ¶4 When he reached his room, the young tsar felt glad to be free from work, and his heart was full of emotion from his freedom, his youth, and his love. He threw himself on the sofa, stretched out his legs upon it, leaned his hand on his hand, and felt the pleasure of sleepiness settle over him.
- ¶5 "I must not go to sleep. My wife will be here soon," he thought. He let his elbow drop and laid his cheek in the palm of his hand.
- ¶6 And then the tsar fell asleep. How long he had slept he did not know, but he was suddenly woken by the soft touch of a hand on his shoulder.
- ¶7 "It is my darling," he thought. "What a shame to have dozed off!"
- ¶8 But it was not she. Before the tsar's eyes, which were wide open and blinking at the light, a man stood. It seemed to the tsar as if he had known him for a long time and was fond of him, as if he trusted him as he would trust himself.
- ¶9 "Come!" said the stranger, and the young tsar followed. Along the way, the stranger laid his hand on the tsar's head, and the tsar for a moment lost consciousness. When he woke up, he found himself in a strange place that smelled strongly of sewage. It was the prison, and through the doors of the cells the young tsar heard the muffled sound of many human beings. The man led him through the prison, and the tsar looked at the prisoners.
- ¶10 "They certainly deserve pity," the tsar thought. "It is a dreadful life. But it cannot be helped. It is their own fault."
- ¶11 But this thought had hardly come into his head before the man replied to it. "They are all in prison by your order. But far from deserving this condition, the greater part of them are far better than you or the judges that put them here."

- 1. Which of the following best describes the events of the passage?
 - A) The tsar gets married and is interrupted on his wedding night by an unwelcome stranger that hauls him off to prison.
 - B) The tsar goes about his daily business, only to be awoken in the middle of the night by an advisor who warns him of a national emergency.
 - C) The tsar retires to his rooms to meet his wife, only to dream that she has been unfairly imprisoned by someone he thought was a friend.
 - D) The tsar takes an evening off of his exhausting work, but is awoken by a mysterious figure who implores the tsar to follow him.
- 2. Based on the passage, the tsar can best be described as
 - A) reckless and youthful.
 - B) passionate and carefree.
 - C) hard-working and snide.
 - $\mathbf{D})~~\text{industrious}$ and dutiful.
- 3. Which of the following is implied in the passage?
 - A) The tsar is miserable and bored after long years of work and needs a change.
 - B) The tsar may not understand the implications of all of his actions as a ruler.
 - C) The tsar is worried that his beautiful wife might leave him if he does not cut back on work.
 - D) The tsar has been struggling with how to approach prison reform for months.
- 4. Which lines in the passage provide the best evidence for the answer to the previous question?
 - A) Paragraphs 1 and 2 ("The young . . . before")
 - B) Paragraphs 4 and 5 ("When he . . . hand")
 - C) Paragraphs 7 and 8 ("It is . . . himself")
 - D) Paragraphs 10 and 11 ("They certainly . . . here")
- 5. Based on the passage, the tsar views his wife with
 - A) pity.
 - B) annoyance.
 - $\mathbf{C}) \quad \text{affection.} \quad$
 - $D) \ \ be wild erment.$

- 6. The tsar throws himself on the sofa in order to
 - A) have a quick nap before he meets his wife.
 - B) rest but not sleep until his wife joins him in the apartment.
 - C) prepare for a quick meeting before his wife comes.
 - D) gather his strength for one last meeting of the day.
- 7. In Paragraph 8, Sentence 3, the phrase "fond of" most closely means
 - A) affectionate towards.
 - B) doting towards.
 - C) foolish about.
 - D) delusory about.
- 8. The tsar has been working in his new role for a
 - A) little under a week.
 - B) little over a month.
 - C) few months.
 - D) few years.
- 9. exhausted traveler : water and rest ::
 - A) tired tsar : a few free hours
 - $B) \quad exhausted \ tsar: new \ job$
 - C) tsar's wife : tsar
 - D) upset stranger : tsar's wealth
- 10. tsar : pity towards prisoners ::
 - A) tsar's wife : compassion towards prisoners
 - B) tsar's advisor : responsibility for prisoners
 - $C) \hspace{0.1in} stranger: defense \hspace{0.1in} of \hspace{0.1in} prisoners$
 - D) tsar's judges : fear of prisoners

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Science

This passage is adapted from Jens Hegg's "When a Wolf isn't Actually a Wolf: Recent research and the messy job of classifying species," first published in PLOS Blogs in 2016 and here licensed under CC-BY.

- ¶1 Did you know that one of the wolf species protected under the Endangered Species Act (ESA) isn't actually a unique species? That is the conclusion of a recent paper, which shows that, among other interesting results, the red wolf is a very recent hybrid of wolves and coyotes.
- ¶2 But hybrids are sterile, right? That's why mules can't breed. The answer is a little more complicated: many hybrids are sterile, but not all.
- ¶3 So what makes a species? If you were to ask people, you would be told "animals that look the same" or "animals that can breed with each other." These ideas each come from different concepts of what defines a species. While there is plenty of agreement on how to define a species, biology is messy and often doesn't fit the rules that we make.
- ¶4 Indeed, the authors of the study found that there are not distinct categories for "wolf" and "coyote," and that many of these animals have mixed ancestry. But at what point can we call a hybrid population a new species, or a population worth protecting? The answer can be complicated. Red wolves are protected under the ESA, but their reintroduction into the wild has been made more difficult by the fact that they often interbreed with coyotes. The ESA tries to preserve diversity within populations where it already exists, but their laws do not specifically recognize hybrids.
- ¶5 The authors themselves spend a lot of space discussing this very topic. They note that the taxonomy in the current ESA laws is out-of-date and overly strict and that the way we categorize species is complex and difficult. In order to protect different species, we have to understand that populations may change over time, the authors say. One solution may be to continue to protect any creatures who have ancestors that come from endangered populations—so, for example, if wolf species are protected, then coyote and wolf hybrids would also be.
- ¶6 What all of this will mean for wolf conservation, or for how the ESA recognizes hybrids, has yet to be decided. It will play out among scientists, and potentially in the halls of Congress. What it illustrates is that all the models we apply to classify one species or another are less than perfect, and that nature has a way of bending all the rules as environments and the populations in them change. If you thought being a taxonomist would be an easy job...think again!

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Section I: Verbal Reasoning

Projected Population of Coyotes, Red Wolves, and Gray Wolves in the U.S., 2019-2021				
Species	2019	2020	2021	
Coyotes	53,700	55,900	59,200	
Red Wolves	51	45	38	
Gray Wolves	700	720	730	

A scientist estimated the population of coyotes, red wolves, and gray wolves in the United States over a period of three years. These estimates are shown in the table above.

Resources: Washington Department of Fish and Wildlife and U.S. Fish and Wildlife Service.

- 11. The author feels that the definition of a species as "animals that can breed with each other" is
 - A) decidedly brilliant but controversial.
 - B) wholly revolutionary but untested.
 - C) possibly helpful but incomplete.
 - D) mostly inaccurate but accepted.
- 12. Which lines in the passage best support the answer to the previous question?
 - A) Paragraph 3, Sentence 2 ("If you . . . other")
 - B) Paragraph 3, Sentence 4 ("While there . . . make")
 - C) Paragraph 4, Sentence 2 ("But at . . . protecting")
 - D) Paragraph 4, Sentence 5 ("The ESA . . . hybrids")

13. The passage opens with

- A) an unsupported hypothesis.
- B) a provocative new theory.
- C) a frustrating debate.
- D) a historical anecdote.
- 14. The passage touches on all of the following topics EXCEPT the
 - A) definition of species.
 - $B) \quad \text{conservation of wolves.}$
 - ${\bf C}) \ \ {\rm classification} \ {\rm of} \ {\rm hybrids}.$
 - D) sterilization of deer.

- 15. According to the passage, the protection of red wolves under the ESA is messy because
 - A) red wolves are not protected by the ESA, because they are hybrids of wolves and coyotes.
 - B) red wolves interbreed with coyotes in the wild, making it difficult to protect their hybrid offspring.
 - C) coyotes tend to outcompete red wolves for important resources, making it difficult to protect them.
 - D) coyotes interbreed with red wolves to form gray wolves, which are not protected by the ESA.
- 16. In Paragraph 6, Sentence 3, the word "illustrates" most closely means
 - A) draws.
 - B) demonstrates.
 - C) decorates.
 - D) displays.
- 17. Based on the passage, a taxonomist is a person who
 - A) protects endangered animals.
 - B) monitors changes in species populations.
 - C) advocates for unclassified types of animals.
 - D) helps categorize animal species.
- 18. According to the table, which of the following species will most likely decrease in population size over time?
 - A) Coyotes and gray wolves
 - B) Red wolves and gray wolves
 - C) Red wolves only
 - D) Gray wolves only

19. coyote : red wolf ::

- A) wolf:coyote
- B) horse : mule
- C) mule : wolf
- D) dog:wolf

20. hybrids : sterile ::

- A) rectangles : square
- B) scientists : scientific models
- C) mules : red wolves
- D) species : unique

Philosophy/Religion

This passage is adapted from Jean Jacques Rousseau's "Real Property," from The Social Contract & Discourses, a collection of Rousseau's work first published in 1920 and here translated by G.D.H. Cole. The Social Contract was first published in 1762.

- I The right of the first occupier (the person who first arrives at a location) is important when it comes to property. When a man decides to own one thing, he at the same time is deciding not to own another. We respect this right because we are not only respecting the property of this man, but the property of others which does not belong to ourselves.
- ¶2 In general, to claim the right of the first occupier over a property, you need to meet a few conditions. First, no one must live in the land yet. Second, a man must only take what he needs to survive. Third, a man must take the land by working it and farming it, which is the only sign of ownership that should be respected by others, if a legal title does not exist.
- ¶3 But what if we made this right unlimited? Would it be enough for someone to set foot on a piece of land, and immediately call himself the master of it? Or can someone take over a land by force? When Nuñez Balbao took possession of the South Seas and all of South America in the name of the crown of Castille, was that enough to take that land away from all of the people who lived there? All others are being robbed, by such an act, of their place of living and means of eating and surviving, given to them by nature.
- ¶4 In the course of history, land was united into countries. As a result, rulers no longer just ruled over groups of people, like the Scythians or Macedonians. Instead, they now rule over countries, and call themselves Kings of France, Spain, England, etc. By ruling over the land, they are confident of holding the people as well.
- ¶5 However, the peculiar fact is that in taking over the land, the rulers actually made possession of land a true right for their people. Those who own property have rights that must be respected by all members of that state and protected against foreign aggression. Still, the right that a community has over property is always more important than the right of any person over that property. Without this balance, there would not be stability in the social ties of the state or in the power of its rulers.
 - 21. The passage focuses primarily on
 - A) land rights and how best to purchase them.
 - B) property rights and their connection to power.
 - $\mathbf{C})\;\;$ human rights and how best to protect them.
 - $D)\;$ national rights and their protection by rulers.

- 22. The author references which of the following in his discussion of the right of the first occupier?
 - A) Historical examples
 - B) Analytical studies
 - C) Personal anecdotes
 - D) Sociological statistics
- 23. The author views the right of the first occupier as
 - A) nostalgic and amusing.
 - B) necessary and helpful.
 - C) exploitative and wrong.
 - D) harmful and overused.
- 24. Which lines in the passage best support the answer to the previous question?
 - A) Paragraph 1, Sentence 3 ("We respect . . . ourselves")
 - B) Paragraph 2, Sentence 1 ("In general . . . conditions")
 - C) Paragraph 3, Sentence 4 ("When Nuñez . . . there")
 - D) Paragraph 3, Sentence 5 ("All others . . . nature")
- 25. According to the passage, which of the following is NOT a condition required to claim the right of first occupier of a property?
 - A) The person can only take as much as he or she needs.
 - B) The land is currently uninhabited.
 - C) The person must work and farm the land.
 - D) The person must secure a legal title.
- 26. Based on the passage, Nuñez Balbao is most likely
 - A) a ruler of the Macedonians.
 - B) the first occupier of the South Sea.
 - $C) \ \ \, an \ \, explorer \ \, and \ \, conqueror.$
 - D) a fugitive and highway robber.

27. In Paragraph 4, Sentence 1, the phrase "united into" most closely means

- A) bonded into.
- B) solidified by.
- C) integrated within.
- D) merged into.

28. According to the author, which of the following is most important?

- A) The right of the conqueror
- B) The right of the second occupier
- C) The right a community has over property
- D) The right a person has over property

29. land : master ::

- A) sea : ship
- $B) \quad country: ruler$
- C) property : right
- D) community : people
- 30. Scythians : group of people ::
 - A) France : country
 - B) Macedonians : rulers
 - C) England : Spain
 - $D) \ \ countries: rulers$

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Turn the page for the next passage.

Historical/Founding Documents

Passage 1 is adapted from Thucydides' "The Plague at Athens" in Stories from Thucydides, as retold by H. L. Havell and published in 1909. Thucydides lived between 400 and 460 BC.

Passage 2 is adapted from Mathew Carey's "A Short Account of the Malignant Fever, Lately Prevalent in Philadelphia," first published in 1793.

Passage 1

- ¶1 Before they had been many days in Attica, a new and far more terrible visitation came upon the Athenians, threatening them with total extinction as a people. We have seen how the whole upper city was packed with a vast multitude of human beings, penned together like sheep in a fold. Into these huddled masses now crept a subtle and unseen foe, striking down his victims by hundreds and by thousands. That foe was the plague, which beginning in Southern Africa, and descending thence to Egypt, reached the southern shores of the Mediterranean, and passed on to Peiraeus, having been carried thither by seamen who trafficked between northern Africa and Greece.
- ¶2 From the description of the symptoms we may conclude that this epidemic was similar to that dreadful scourge of mankind that has been almost conquered by modern science, the smallpox. The patient who had taken the infection was first attacked in the head, with inflammation of the eyes, and violent headache. By degrees the poison worked its way into the whole system, affecting every organ in the body, and appearing on the surface in the shape of small ulcers and boils.
- ¶3 The fearful rapidity with which the infection spread caused a panic throughout the city, and even the boldest were not proof against the general terror. If any man felt himself sickening of the plague, he at once gave up all hope, and made no effort to fight against the disease. Few were found brave enough to undertake the duty of nursing the sick, and those who did generally paid for their devotion with their lives. In most cases the patient was left to languish alone, and perished by neglect.

16

Passage 2

- ¶1 The manufactures, trade, and commerce of Philadelphia, had, for a considerable time, been improving and extending with great rapidity. Confidence, formerly banished, was universally restored. Property of every kind rose to, and in some instances beyond, its real value.
- ¶2 In this prosperity, which revived the almost extinguished hopes of four millions of people, Philadelphia participated in an eminent degree.
- ¶3 But in 1793, this destroying scourge, the malignant fever, crept in among us, and nipped in the bud the fairest blossoms that imagination could form. And oh! What a dreadful contrast has since taken place! Many women, then in the lap of ease and contentment, are bereft of beloved husbands, and left with numerous families of children to maintain, unqualified for the arduous task. Many orphans are destitute of parents to foster and protect them. Many entire families are swept away, without leaving a trace behind.
- ¶4 A great proportion of the merchants and traders have left the city, and been totally unable, from the stagnation of business, and diversion of all their expected resources, to make any provision for payment; most of their notes have been protested, as they became due.
 - 31. The author of Passage 1 emphasizes that one of the primary emotions felt by plague sufferers was
 - A) acceptance of their illness.
 - B) hopelessness of recovery.
 - C) anger towards family members.
 - D) fear of disfigurement.
 - 32. According to Passage 1, which of the following groups helped spread the plague among different countries?
 - A) Athenians
 - B) Sheep
 - C) Seamen
 - D) Smallpox survivors
 - 33. In Paragraph 3, Sentence 4 of Passage 1, the word "languish" most closely means
 - A) fade.
 - B) droop.
 - C) suffer.
 - $D) \ \ \, wilt.$

- 34. Passage 2 emphasizes that one of the greatest changes to Philadelphia after the arrival of the fever was the
 - A) economic deterioration of the city.
 - $B) \hspace{0.1in} \text{steep and sudden rise of property values.}$
 - C) flocking of merchants to crowded hospitals.
 - D) institution of a new health and sanitation plan.
- 35. Which lines in Passage 2 best support the answer to the previous question?
 - A) Paragraph 1, Sentence 1 ("The manufactures . . . rapidity")
 - B) Paragraph 1, Sentence 3 ("Property of . . . value")
 - C) Paragraph 2, Sentence 1 ("In this . . . degree")
 - D) Paragraph 4, Sentence 1 ("A great . . . due")
- 36. Based on Passage 2, which of the following is likely NOT a reason that merchants and traders left Philadelphia during the fever?
 - A) Their businesses suffered as people used their money on treatments and protection rather than goods and services.
 - B) They were unable to pay their bills because they had to divert their money towards taking care of their health.
 - C) They saw how quickly the plague was spreading to other areas and moved quickly to serve these new markets.
 - D) They were afraid that their families and loved ones would become ill and wished to move to a safer place.
- 37. Which of the following describes one difference in the structures of Passage 1 and 2?
 - A) Passage 1 looks at a plague's local impact, while Passage 2 looks at a plague's global impact.
 - B) Passage 1 opens directly with a discussion of the plague, while Passage 2 does not.
 - C) Passage 1 offers personal anecdotes about the plague, while Passage 2 describes historical records.
 - D) Passage 1 ends on a hopeful note, while Passage 2 ends on a despairing note.
- 38. Both the authors of Passage 1 and Passage 2 view plagues as
 - A) devastating.
 - B) lucrative.
 - C) inevitable.
 - D) common.

39. The following analogy is based on Passage 1.

plague : Athenians ::

- A) foe : victims
- B) sheep : people
- $\mathbf{C}) \hspace{0.1 cm} \text{smallpox}: \text{modern medicine} \hspace{0.1 cm}$
- D) infection : panic
- 40. The following analogy is based on Passage 2's description of Philadelphia prior to the outbreak of disease in 1793.

trade : improving and extending ::

- A) merchants : rejoicing
- B) property values : falling
- C) confidence : being restored
- D) prosperity : being destroyed

STOP

Do not go on to the next section until instructed to do so by the proctor.

You may use any remaining time to check your work on this section (Section I) only. This page is intentionally blank.

Turn the page for the next passage.

Section II: Grammar/Writing

Instructions:

You will have 40 minutes to complete Section II. Read each passage and answer the corresponding questions. 10 questions will follow each of the 4 passages, for a total of 40 questions. Each question will ask you to either correct an error or suggest an improvement in the passage. If no change is necessary, select the option "NO CHANGE."

Note: Most questions correspond to a numbered portion of the passage. In these questions, answer choices represent alternatives that could be substituted for the numbered portion. Select the best answer choice out of the given options.

Philosophy/Religion

This passage is adapted from St. Teresa of Ávila's The Life of St. Teresa of Ávila, first published in 1583, and here translated by David Lewis.

What I will now talk about was, I believe, the beginning of [41] <u>great harmful</u> to me. I think often of how wrong it is for parents not to be careful that their children always see only what is good. For, even though my mother was good herself, I did not [42] <u>decide</u> as much good from her as I ought to have. In fact, it was almost none at all, and I learned a lot of evil that did me great harm.

For example, my mother loved books of chivalry. But this hobby did not hurt her as much as [43] <u>me</u>; <u>because she</u> never wasted much time on them. Only we, her children, had enough time and freedom to read them. [44] <u>It made my dad super mad</u>, so we had to make sure he didn't catch us. I developed a habit of reading these books, and this little fault that I [45] <u>observe</u> in my mother was the beginning of the lukewarmness in my good desires.

I thought there was no harm in it when I wasted many hours night and day in so vain an occupation, even when I kept it a secret from my father. [46] <u>So completely was I mastered by this passion, that I thought I could never be happy without a new chivalry book.</u>

I began to stray in other ways [47] <u>regardless</u>. I made much of dress and cared too much about my appearance. I [48] <u>took pains with my hands and my hair and using perfumes</u>. I was overly neat in all ways.

I had not spent, I think, three months in these vanities, when they took me to a monastery in the city where I lived, in [49] <u>witch</u> children like myself were brought up. They waited for an opportunity which would make the change seem nothing out of the way, for, as my sister was married, it was not fitting I should remain alone, without a mother, in the house.

For the first eight days, I suffered much, but more from the suspicion that my vanity was known than from being in the monastery. But within eight days, I was much more content than I had been at my father's house. [50] <u>My soul began to return to the good habits of my earlier years.</u>

41. great harmful

- A) NO CHANGE
- B) greatly harmful
- $C) \ \ great \ harm$
- D) greatly harm

42. decide

- A) NO CHANGE
- B) deride
- C) derive
- D) demise

43. me; because she

- A) NO CHANGE
- B) me, because she
- $C) \quad me: because she$
- D) me, she

44. It made my dad super mad, so we had to make sure he didn't catch us.

- A) NO CHANGE
- B) My father got real angry when he saw us, so we had to be pretty careful.
- C) It got my father all worked up, so we had to make sure he never saw us, you know?
- $D)\;\; It annoyed my father so much that we had to be careful he never saw us.$

45. observe

- A) NO CHANGE
- B) observed
- C) will observe
- D) will have observed
- 46. So completely was I mastered by this passion, that I thought I could never be happy without a new chivalry book.
 - A) NO CHANGE
 - B) So completely was I mastered by this passion, that I thought, without a new chivalry book, I could never be happy given these feelings.
 - C) I thought I could never be happy without a new chivalry book, so completely was I mastered, by this passion especially.
 - D) I was mastered by this passion, the new chivalry book, so completely that I thought I could never be happy.

47. regardless

- A) NO CHANGE
- B) notwithstanding
- $C) \ \ \, as \ well$
- D) for example

48. took pains with my hands and my hair and using perfumes.

- A) NO CHANGE
- B) took pains with my hands and my hair and used perfumes.
- C) taking pains with my hands and my hair and using perfumes.
- D) taking pains with my hands and my hair and used perfumes.

49. witch

- A) NO CHANGE
- B) whether
- C) wich
- D) which

50. The writer is considering deleting the following sentence:

My soul began to return to the good habits of my earlier years.

Should the writer make this deletion?

- A) Yes, because the sentence is irrelevant to the paragraph.
- B) Yes, because the sentence is too personal and does not match the rest of the passage.
- C) No, because the sentence offers an appropriate conclusion to the writer's narrative of events.
- D) No, because the sentence summarizes the author's main point and proves her opening thesis.

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Historical Profile

This passage is adapted from Voltaire's The History of Peter the Great, Emperor of Russia, first published around 1760 and here translated by Tobias Smollett.

Peter the Great was tall, well made, with piercing eyes and a strong constitution. He was intelligent and active, which [51] promoted him to undertake and execute the greatest things.

His education was somewhat [52] <u>lacking the princess Sophia was; in a peculiar manner, interested</u> to let him remain in ignorance, and indulge himself in those excesses which [53] <u>youth, idleness, custom, and</u> <u>high rank</u> made too allowable.

[54] <u>But whatever, he married in June 1689.</u> Like rulers who came before him, he married one of his own subjects, the daughter of colonel Lapuchin. During this time, though he had not ascended to the throne, he applied himself to the arts of war and government, which, even then, showed he had the seeds of greatness within him.

[55] <u>It was still less expected that, subject to cold sweats and convulsions, a prince who was so afraid of water when he was obliged to cross a small river or brook, should become one of the best seamen in all the north.</u> In order to get the better of nature, he began by jumping into the water, notwithstanding the horror he felt at it, until finally this aversion to water was changed into a fondness.

[56] <u>As a result</u>, Peter was taking a walk at Ishmaelof, a summer palace built by his grandfather, when he perceived an old English ship that had been entirely neglected. He asked his mathematical teacher how that boat had come to be so different than any he had seen before, and his teacher replied that it was made to travel by [57] <u>sailing and oars</u>. The young prince wanted instantly to try it out, but it first had to be repaired and rigged.

Brant, the ship-builder, soon put the boat in order and maneuvered her into the river Yauza. Peter soon learned to pilot not only this boat, but many others, and in 1694 decided to make a journey to the Frozen Sea, which no other ruler beside himself had ever before seen. [58] He had already learned the manner of working a ship and became proficient at it.

Over time, Peter raised both [59] <u>an armies and navies</u>. He made the man Le Fort a general by land, and then an admiral, though Peter did not yet have a fleet for him. Admiral Le Fort remedied this by employing some Dutchmen and Venetians in building a number of ships. These vessels were to travel down river, where they [60] <u>awe</u> the Crim Tartars, with whom hostilities had been renewed.

51. promoted

- A) NO CHANGE
- B) prompted
- C) promised
- D) proclaimed

52. lacking the princess Sophia was; in a peculiar manner, interested

- A) NO CHANGE
- B) lacking, the princess Sophia was; in a peculiar manner, interested
- C) lacking-the princess Sophia was in a peculiar manner; interested
- D) lacking; the princess Sophia was, in a peculiar manner, interested
- 53. youth, idleness, custom, and high rank
 - A) NO CHANGE
 - $B) \hspace{0.1 cm} \text{youth, idleness, custom; and high rank} \\$
 - C) youth; idleness, custom, and high rank
 - D) youth idleness custom and high rank
- 54. But whatever, he married in June 1689.
 - A) NO CHANGE
 - B) Nevertheless, he married in June 1689.
 - C) But guess what—he married in June 1689!
 - D) Nevertheless, he engaged in nuptials in the temporal period June 1689.

- 55. It was still less expected that, subject to cold sweats and convulsions, a prince who was so afraid of water when he was obliged to cross a small river or brook, should become one of the best seamen in all the north.
 - A) NO CHANGE
 - B) It was still less expected that a prince, when he was obliged to cross a small river or brook to become one of the best seamen in all the north, would be subject to cold sweats and convulsions.
 - C) It was still less expected that, becoming one of the best seamen in all the north, a prince subject to cold sweats and convulsions when he was obliged to cross a small river or brook who was so afraid of water.
 - D) It was still less expected that a prince who was so afraid of water, and who was subject to cold sweats and convulsions when he was obliged to cross a small river or brook, should become one of the best seamen in all the north.
- 56. As a result
 - A) NO CHANGE
 - B) One day
 - C) For instance
 - $D) \ \ On the other hand$
- 57. sailing and oars
 - A) NO CHANGE
 - B) sails and oars
 - $C) \hspace{0.1in} \text{sails and oaring} \hspace{0.1in}$
 - D) sailing oars
- 58. The author is thinking of inserting the following sentence here:

The Frozen Sea had a lot more visitors in the coming years.

Should the author make this insertion?

- A) Yes, because it explains why Peter wanted to travel to the Frozen Sea.
- B) Yes, because it provides more geographical background on the Frozen Sea.
- C) No, because it is irrelevant and does not add crucial information to the paragraph.
- $\mathbf{D})~~\mathbf{No},$ because it is out of place and belongs in the final paragraph instead.

59. an armies and navies

- A) NO CHANGE
- B) an armies and navy
- $C) \ \ \, an \ \, army \ \, and \ \, navy \ \ \,$
- D) an army and a navies

60. awe

- A) NO CHANGE
- $B) \quad \text{will have awed} \quad$
- $C) \quad \text{were in awe} \quad$
- D) would awe

Science

This passage is adapted from Andrew Githeko and Ednah Ototo's "Malaria control strategies reduce the caseload - but bring new challenges," first published in 2018 in The Conversation, licensed under CC-BY ND.

Kenya's two major malaria prevention [61] <u>strategies—the spraying of homes in high-transmission areas</u> and the distribution of insecticide-treated nets, have led to a significant reduction in malaria transmission.

The two methods [62] <u>was</u> introduced about a decade ago and have resulted in an 80% reduction in disease cases.

[63] <u>But the drop in cases has brought a new challenge</u>: people have begun losing their immunity to the disease. The consequence is that they are prone to contracting more complicated forms of the malaria that could result in death.

There are two types of immunity that people are able to develop naturally: [64] <u>clinical immunity and</u> <u>immunity that's parasitological</u>. People living in high transmission areas develop clinical immunity naturally after being exposed to the parasite and receiving successful treatment. Their bodies are able to resist infection. They are also able to develop parasitological immunity. [65] <u>Before</u> being bitten by many infected mosquitoes over a long period, their bodies are able to withstand higher numbers of parasites in their blood.

When people don't have parasitological immunity, they face the risk of becoming severely ill when the number of parasites in the blood increases. This can take the form of severe anemia, cerebral malaria, and eventually death. Children are particularly [66] <u>suspenseful</u>.

In our study we focused on parasitological immunity in children. We wanted to understand how malaria prevention interventions such as bed nets and [67] <u>indoor spraying</u> were preventing people from developing parasitological immunity.

We found that children who were less exposed to malaria as they grew up had lower levels of parasitological immunity. This exposed them to developing more severe strains of malaria.

Our findings should be taken on board as part of [68] <u>Kenyas</u> broader malaria prevention strategies. The government needs to maintain strong monitoring and surveillance networks to ensure that existing interventions are still sufficient. And it needs to work out new interventions to deal with the consequences of its interventions. But there's another effect that complicates the scenario even further. [69] <u>People who hadn't taken anti-</u> malarial medicines or used treated bed nets were more likely to carry parasites in their blood and <u>mosquitos, which infects.</u> This makes the rest of the population more susceptible to infections, with implications for the country's broader malaria prevention strategy.

The risk of increased infection brings added complexity to government's efforts. The only way to meet the challenge is to ensure that there [70] <u>are</u> sufficient monitoring and surveillance strategies.

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- 61. strategies—the spraying of homes in high-transmission areas and the distribution of insecticide-treated nets, have
 - A) NO CHANGE
 - B) strategies—the spraying of homes in high-transmission areas and the distribution of insecticide-treated nets—have
 - C) strategies—the spraying of homes in high-transmission areas and the distribution of insecticide-treated nets, have
 - D) strategies: the spraying of homes in high-transmission areas and the distribution of insecticide-treated nets: have

62. was

- A) NO CHANGE
- B) were
- $\mathbf{C}) \hspace{0.1in} \text{has been} \hspace{0.1in}$
- D) being

63. But the drop in cases has brought a new challenge

- A) NO CHANGE
- B) But the drop in cases also led to a totally weird new thing
- C) But this really quick drop in cases made a whole new challenge
- D) But listen here, the drop in cases has brought a new challenge

- 64. clinical immunity and immunity that's parasitological.
 - A) NO CHANGE
 - B) clinical immunity and parasite immunological.
 - C) clinical immunity and parasitological immunity.
 - D) clinical, parasitological immunity.

65. Before

- A) NO CHANGE
- B) After
- C) Though
- D) Given

66. suspenseful

- A) NO CHANGE
- B) suspensory
- C) sustainable
- D) susceptible

67. indoor spraying

- A) NO CHANGE
- B) malaria-infected mosquitoes
- C) cuts in funding
- D) educational documentaries

68. Kenyas

- A) NO CHANGE
- B) Kenya's
- C) Kenyas'
- D) Kenya

- 69. People who hadn't taken anti-malarial medicines or used treated bed nets were more likely to carry parasites in their blood and mosquitos, which infects.
 - A) NO CHANGE
 - B) People who hadn't taken anti-malarial medicines, or people who hadn't used treated bed nets, were more likely to infect bugs like mosquitos, because these people continued to carry parasites in these people's blood.
 - C) People who hadn't taken anti-malarial medicines or used treated bed nets were more likely to infect mosquitoes, because they continued to carry parasites in their blood.
 - $D)\;\;People$ were more likely to infect mosquitoes because of their blood.

70. are

- A) NO CHANGE
- B) were
- C) being
- D) are being

Modern/Influential Thinkers

This passage is adapted from Winston Churchill's speech "Blood, Toil, Tears, and Sweat," first given in 1940. Churchill is discussing Great Britain's entry into the war that would come to be known as WWII.

On Friday evening last, I received His Majesty's commission to form a new Administration. It was the evident wish and will of Parliament and the nation that this should be conceived [71] by the broadest possible basis and that it should include all parties, both those who supported the late Government and also the parties of the Opposition.

I have completed the [72] <u>most important</u> part of this task. A War Cabinet has been formed of five Members, representing, with the Liberal Opposition, the unity of the nation. [73] <u>The three party</u> <u>Leaders have agreed to serve, either serving in the War Cabinet or serving in high executive office.</u> The three Fighting Services have been filled. [74] <u>It was pretty important this should be done on a single</u> <u>day because we're really in a rush right now.</u>

Sir, to form an Administration of this scale and complexity is a serious undertaking in itself, but it must be remembered that we are in the [75] <u>preloading</u> stage of one of the greatest battles in history, that we are in action at many points in Norway and in Holland, that we have to be prepared in the Mediterranean, [76] <u>that the air battle is continuous</u>, and that many preparations have to be made here at home. In this crisis I hope I may be pardoned if I do not address the House at any length today. I hope that any of my friends and colleagues, or former colleagues, who are affected by the political reconstruction, will [77] <u>made</u> all allowances for any lack of ceremony with which it has been necessary to act. I would say to the [78] <u>House; as I said to those who've joined this government, "I have nothing to offer but blood, toil, tears and sweat."</u>

We have before us an ordeal of the most grievous kind. We have before us many, many long months of struggle and [79] <u>of peace</u>. You ask, what is our policy? [80] <u>However</u>: it is to wage war, by sea, land, and air, with all our might and with all the strength that God can give us; to wage war against a monstrous tyranny, never surpassed in the dark and lamentable catalogue of human crime. That is our policy.

71. by

- A) NO CHANGE
- B) under
- C) without
- $D) \ on$

72. most important

- A) NO CHANGE
- B) most importantly
- C) mostly importantly
- D) most importantest
- 73. The three party leaders have agreed to serve, either serving in the War Cabinet or serving in high executive office.
 - A) NO CHANGE
 - B) The three party leaders have agreed to serve either in the War Cabinet or in high executive office.
 - C) The three party leaders have agreed, in the War Cabinet or in high executive office, to serve in one of those.
 - D) The three party leaders in the War Cabinet or in high executive office have agreed to serve in one or the other of them.
- 74. It was pretty important this should be done on a single day because we're really in a rush right now.
 - A) NO CHANGE
 - B) It was necessary that this should be done in one single day, on account of the extreme urgency and rigor of events.
 - C) It was necessary that this should be done in one solar transit, given the importance of the occasion.
 - D) It was kind of a big deal to get this done in just a day, because the events were really urgent and important.
- 75. preloading
 - A) NO CHANGE
 - B) preliterate
 - C) preliminary
 - D) prefecture

- 76. that the air battle is continuous, and that many preparations have to be made here at home.
 - A) NO CHANGE
 - B) the air battle is continuous and many preparations have to be made here at home.
 - C) that the air battle is continuous, and preparations to be made here at home.
 - D) that the continuing air battle, and that the many preparations to be made here at home.

77. made

- A) NO CHANGE
- B) making
- C) make
- $D) \ \ to \ make$
- 78. House; as I said to those who've joined this government, "I have
 - A) NO CHANGE
 - B) House as I said to those who've joined this government "I have
 - C) House—as I said to those who've joined this government, "I have
 - D) House, as I said to those who've joined this government, "I have

79. of peace

- A) NO CHANGE
- B) of suffering
- C) of celebration
- D) of wonder

80. However

- A) NO CHANGE
- B) To state it another way
- C) I will say
- D) You ask

STOP

Do not go on to the next section until instructed to do so by the proctor.

You may use any remaining time to check your work on this section (Section II) only.

Section III: Quantitative Reasoning

Instructions:

You will have 50 minutes to complete Section III. You may not use a calculator for the math portion of this exam. Keep in mind that accompanying figures are NOT necessarily drawn to scale. You may use any of the following formulas to help you in your calculations.

Area of a circle = πr^2 , where *r* is the radius of the circle

Circumference of a circle = $2\pi r$, where *r* is the radius of the circle

There are 360 degrees in a circle.

There are 2π radians in a circle.

Volume of a sphere = $\frac{4}{3}\pi r^3$, where *r* is the radius of the sphere

Surface area of a sphere = $4\pi r^2$, where *r* is the radius of the sphere

Area of a rectangle = $length \times width$

Area of a triangle = $\frac{1}{2}$ (base × height)

The sum of the measures of the interior angles of a triangle is 180°.

Pythagorean theorem (for a right triangle): If *a*, *b*, and *c* are the side lengths of the triangle, and *c* is the hypotenuse, then $a^2 + b^2 = c^2$.

- 81. All flufferpot plants have blue stems, but not all blue-stemmed plants are flufferpots. Which of the following must be true?
 - A) At least two types of plants that have blue stems.
 - B) All flufferpots have blue leaves.
 - C) A plant with a blue stem is not a flufferpot.
 - D) If a plant develops blue stems and roots, it becomes a flufferpot.
- 82. A triangle has two interior angles that measure 45°. What is the measure of the triangle's remaining angle?
 - A) 45°
 - B) 60°
 - C) 75°
 - $D) \ 90^{\circ}$
- 83. What is the slope of the line below?

$$y = -5x + 8$$

- A) -8
 B) -5
 C) 5
 D) 8
- 84. Which of the following could be the missing term in the sequence below?

3, 6, 12, ?, 48, 96 . . .

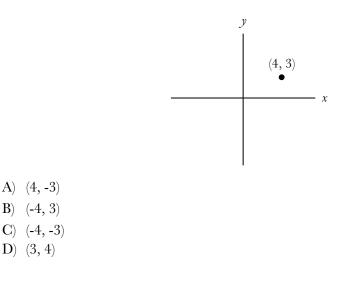
A) 18
B) 21
C) 24
D) 26

- 85. The Changs have three family pets. Two of the pets are the same species, and all of the pets are female. If one of their pets is a female cat, which of the following could be the remaining two pets in their family?
 - A) A female cat and a male cat
 - $B) \quad A \ female \ cat \ and \ a \ female \ dog$
 - C) A female dog and a female bird
 - $D) \ A \ female \ dog \ and \ a \ male \ dog$
- 86. If x is an even integer, which of the following must also be an even integer?
 - A) x + 1B) x - 3C) 2xD) 4x - 1
- 87. If a triangle has an area of 18 square inches and a height of 12 inches, what is the length of that triangle's base?
 - A) 1.5 inches
 - B) 3 inches
 - C) 6 inches
 - D) 9 inches
- 88. Triangle *JKL* is an equilateral triangle. Which of the following could be one of the measures of the interior angles of triangle *JKL*?
 - A) 45°
 - B) 60°
 - C) 75°
 - D) 90°
- 89. Which of the following is similar to a rectangle with a length of 10 units and a width of 2 units?
 - A) A square with a side length of 6 units
 - B) A rectangle with a length of 20 units and a width of 1 unit
 - C) A rectangle with a length of 8 units and a width of 4 units
 - D) A rectangle with a length of 5 units and a width of 1 unit

90. Which of the following lines is perpendicular to $y = -\frac{1}{4}x + 5$?

- A) $y = -\frac{1}{4}x 5$ B) $y = \frac{1}{4}x + 5$ C) y = 4x + 5D) y = -4x + 5
- 91. A biologist calculates that there are 21 deer per 2 square miles in a forest park. Based on this calculation, how many deer are in 6 square miles of the park?
 - A) 7 deer
 - B) 42 deer
 - C) 63 deer
 - $D) \ \ 126 \ deer$
- 92. If *a* is a prime number, which of the following must also be prime?
 - A) 2aB) a^2
 - C) a^3
 - D) None of the above
- 93. A chemist finds that the atmosphere of Planet A has more oxygen than the atmosphere of Planet B by 24 percentage points. He also discovers that the atmosphere of Planet C is 60% oxygen. If the atmosphere of Planet C has twice as much oxygen as that of Planet B, what percentage of Planet A's atmosphere is composed of oxygen?
 - A) 6%
 - B) 54%
 - C) 72%
 - D) 96%

- 94. A student analyzes a number of figures and concludes that squares and rectangles are always similar. Which of the following is a counterexample that disproves this claim?
 - A) A square with an area of 25 square inches and a rectangle with a width of 5 inches and a height of 5 inches
 - B) A square with an area of 25 square inches and a rectangle with an area of 25 square inches and one leg measuring 5 inches
 - C) A square with an area of 25 square inches and a rectangle with a perimeter of 20 inches and an area of 25 square inches
 - D) A square with an area of 25 square inches and a rectangle with a perimeter of 20 inches and one leg measuring 8 inches
- 95. The point below on the (x, y) coordinate plane is reflected across the *y*-axis. What is the resulting point?



96. How many numbers between 1 and 21 (inclusive) meet both conditions below?

Condition 1: The number is a multiple of 3. Condition 2: The number is even.

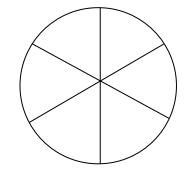
A) 3B) 4C) 6

D) 7

- 97. A roll of quarters can fit forty quarters. If Santiago asks a bank for \$50 in rolled quarters, how many rolls will he receive?
 - A) 1.25 B) 4
 - C) 5
 - D) 12.5

98. If $x = -\frac{1}{4}$, which of the following must be true?

- A) x < -.4B) $x < -\frac{1}{3}$ C) x > -.04D) $x > -\frac{1}{2}$
- 99. A chemist is studying a population of bacteria in a petri dish, and wants to divide the dish into six equal segments using three glass dividers, as shown below. If the circumference of the dish measures 4π inches, what would be the length of each glass divider? The figure is not drawn to scale.



- A) 2 inches
- B) 4 inches
- C) 8 inches
- D) 16 inches

100. If the interior angles of a polygon add up to 540°, which of the following must be true?

- I. The shape has five sides.
- II. The shape's side lengths are equal.
- III. The shape has at least one angle measuring 108°.
 - A) I only
 - B) II only
 - C) I and III only
 - $D) \ \ I, II, and III$

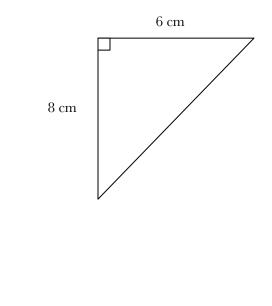
101. Which of the following is equivalent to $2x^2(5-x)$?

- A) 10xB) $10x^2 - x$
- C) $10x^2 2x^3$
- D) $50 2x^2$

A) 8 cm
B) 10 cm
C) 12 cm
D) 100 cm

102. What is the length of the hypotenuse of the triangle below?

(Hint: The Pythagorean theorem states that, for a right triangle, if *a*, *b*, and *c* are the side lengths of the triangle, and *c* is the hypotenuse, then $a^2 + b^2 = c^2$.)



- 103. Which of the following is a solution to $3x^2 7x = 20$?
 - A) $x = -\frac{5}{3}$ B) x = 0C) $x = \frac{3}{7}$ D) x = 5
- 104. Nora has a handful of coins in her pocket that add up to thirty-four cents. If she has an equal number of pennies and nickels, then how many dimes and quarters does Nora have in her pocket?
 - A) 0 quarters and 1 dime
 - B) 0 quarters and 2 dimes
 - C) 1 quarter and 0 dimes
 - $D) \ \ 1 \ quarter \ and \ 1 \ dime$
- 105. A scientist goes to a lake to study water strider bugs of the family *Gerridae*, which can move across the surface of bodies of water. The scientist determines the lake is perfectly circular, and that the circumference of the lake measures 2π kilometers. If there are approximately 1,000 water strider bugs per square kilometer on this particular lake's surface, which of the following gives the closest approximation of how many water strider bugs are on the lakes surface, in total?
 - A) $1,000\pi$ water strider bugs
 - B) 2,000 π water strider bugs
 - C) 4,000 π water strider bugs
 - D) 10,000 π water strider bugs

106. If x is an integer less than 0, which of the following could be a value of $|x^3 - 1|$?

- A) -9
 B) -2
 C) 0
- D) 28
- 107. Circle A has a circumference that measures twice the circumference of Circle B. What is the relationship between the radii of Circle A and Circle B?
 - A) Circle A's radius is twice the length of Circle B's radius.
 - B) Circle A's radius is four times the length of Circle B's radius.
 - C) Circle A's radius is Circle B's radius divided by 2π .
 - D) Circle A's radius is Circle B's radius divided by π .

- 108. A triangle has two angles that measure 10° and 75°. Which of the following must be true about the triangle?
 - A) None of the triangle's legs are equal in length.
 - B) The triangle is an isosceles right triangle.
 - C) The triangle's longest leg is opposite the 75° angle.
 - $D) \ \ \, None \ \ of the \ \ above \ \ can \ be \ true.$
- 109. A square in the (x, y) coordinate plane has one leg that extends from (1, 4) to (1, s). What is the slope of the legs of the square that are perpendicular to this leg?
 - A) The slope of the perpendicular legs is undefined.
 - B) The slope of the perpendicular legs is 0.
 - C) The slope of the perpendicular legs is 1.
 - D) The slope of the perpendicular legs cannot be determined.
- 110. A sphere has a diameter of 4 inches (in). What is the volume of the sphere?
 - A) $\frac{32\pi}{3}$ in³ B) 16π in³ C) 64π in³ D) $\frac{256\pi}{3}$ in³
- 111. If a shape has four sides and one interior angle that measures 90°, which of the following must be true for that shape?
 - A) The shape is a rectangle.
 - B) The shape has at least two sides that are equal in length.
 - C) The shape does not have any acute interior angles.
 - D) None of the above must be true.

Section III: Quantitative Reasoning

112. Which of the following is a point at which the two equations below intersect?

$$y = -3x + 7$$
$$\frac{1}{2}y = 2x + 7$$

A) (7, -14)

- B) (1, 4)
- C) (1, 5)
- D) None of the above

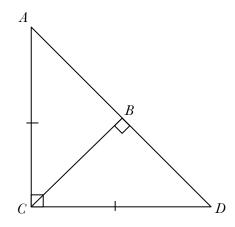
113. A cylinder has a surface area of $150\pi \text{ in}^2$ and a height of 10 in. Which of the following is false?

- A) The radius of the cylinder is 5 in.
- B) The diameter of the cylinder is 10 in.
- C) The area of the base of the cylinder is 15 in^2 .
- D) The volume of the cylinder is 250π in³.
- 114. How many numbers between 20 and 100 (inclusive) meet both conditions below?
 - 1: The square root of the number is an integer.
 - 2: The number shares at least one prime factor with 15.
 - A) 3
 - B) 4
 - C) 5
 - D) 6

115. If $b \bullet n = \sqrt{b^2 + n^2}$, which of the following is equivalent to $a^2 \bullet 4$?

A) 2aB) $4a^2$ C) a^2+4 D) $\sqrt{a^4+16}$

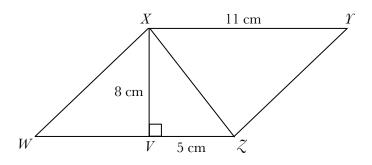
- 116. If *s* is the real square root of the integer *v*, and v^2 is odd, then which of the following must be true about $2s^2$?
 - A) It is odd and positive.
 - B) It is odd and negative.
 - C) It is even and positive.
 - $D) \ \ It is even and negative.$
- 117. Line \overline{AB} measures 4 cm. What is the area of Triangle *BCD*?



- A) 4 cm^2
- B) 8 cm^2
- C) 16 cm^2
- D) 32 cm^2
- 118. For every \$500 earned by a new company, \$15 is donated to charity. If the company earned\$10,000 in May and \$12,000 in June, how much MORE money did it donate in June than in May?
 - A) \$60B) \$133C) \$200
 - C) \$200
 - D) \$400

- 119. Which of the following is equivalent to $\left(\frac{x^4y^2}{xy}\right)^3$?
 - A) $x^{3}y$ B) $x^{6}y^{4}$ C) $x^{9}y^{3}$ D) $x^{12}y^{6}$
- 120. If XY = 11 cm, XV = 8 cm, and VZ = 5 cm, what is the perimeter of the parallelogram WXYZ below?

(Hint: The Pythagorean theorem states that, for a right triangle, if *a*, *b*, and *c* are the side lengths of the triangle, and *c* is the hypotenuse, then $a^2 + b^2 = c^2$.)



- A) 38 centimeters
- B) 42 centimeters
- C) $22 + 8\sqrt{2}$ centimeters
- D) $22 + 4\sqrt{10}$ centimeters

STOP

Do not go on to the next section until instructed to do so by the proctor.

You may use any remaining time to check your work on this section (Section III) only.

