Part 1 Reading Comprehension

Reading passage 1
Read the following text and answer the questions.

Eiffel Tower, a Parisian landmark, is also a technological masterpiece in building-construction history. When the French government was organizing the International Exposition of 1889 to celebrate the centenary of the French Revolution, a competition was held for designs for a suitable monument. More than 100 plans were submitted, and the Centennial Committee accepted that of the noted bridge engineer Gustave Eiffel. Eiffel's concept of a 300-meter (984-foot) tower built almost entirely of open-lattice wrought iron aroused amazement, skepticism, and no little opposition on aesthetic grounds. When completed, the tower served as the entrance gateway to the exposition.

Nothing remotely like the Eiffel Tower had ever been built; it was twice as high as the dome of St. Peter's in Rome or the Great Pyramid of Giza. In contrast to such older monuments, the tower was erected in only about two years (1887–89), with a small labor force, at slight cost. Making use of his advanced knowledge of the behavior of metal arch and metal truss forms under loading, Eiffel designed a light, airy, but strong structure that presaged a revolution in civil engineering and architectural design. And, after it opened to the public on May 15, 1889, it ultimately vindicated itself aesthetically.

The Eiffel Tower stands on four lattice-girder piers that taper inward and join to form a single large vertical tower. As they curve inward, the piers are connected to each other by networks of girders at two levels that afford viewing platforms for tourists. By contrast, the four semicircular arches at the tower's base are purely aesthetic elements that serve no structural function. Because of their unique shape, which was dictated partly by engineering considerations but also partly by Eiffel's artistic sense, the piers required elevators to ascend on a curve; the glass-cage machines designed by the Otis Elevator Company of the United States became one of the principal features of the building, helping establish it as one of the world's premier tourist attractions.

The tower itself is 300 meters (984 feet) high. It rests on a base that is 5 meters (17 feet) high, and a television antenna atop the tower gives it a total elevation of 324 meters (1,063 feet). The Eiffel Tower was the tallest structure in the world until the topping off of the Chrysler Building in New York City in 1929.

1. According to the passage, which of the following is an <u>incorrect</u> statement?
   a. The Eiffel Tower was dethroned by the Chrysler building as the tallest structure when the latter was completed in 1929
   b. The four semicircular arches at the tower's base was an essential part of the supporting structure
   c. Complemented by the unique elevators that ascended on a curve, the tower ultimately became one of the most visited attractions in Paris
   d. Even though the tower's design was initially met with skepticism and opposition, it vindicated itself in the end
2. Who was Gustave Eiffel?
   a. A member of the Centennial Committee
   b. A representative for the Otis Elevator company
   c. A leader of the French Revolution
   d. An accomplished bridge engineer
3. What does the word 'presaged' mean in Paragraph 2?
   a. resembled   c. initiated
   b. sought   d. refined
4. According to the passage, the elevators needed to ascend on a curve because ___
   a. the tower stood on four piers that tapered inwards
   b. it needed a distinct feature to attract tourists
   c. the Centennial Committee requested it
   d. the French culture deems curves to be more attractive than lines
5. In order for the sentence to convey the same idea, the word 'principal' in Paragraph 3 can be best replaced with _____
   a. ordinary   c. single
   b. only   d. main
6. Why was the fact that the tower was erected in two years significant?

a. It was an engineering milestone at the time
b. It cost the French government quite a lot of money
c. The original design faced a lot of opposition
d. The labor required was unprecedentedly high

7. What does the word 'centenary' in the first paragraph mean?
   a. hundredth anniversary
   b. of great significance
   c. centrally located
   d. principal to

8. Which of the following best summarize the passage?
   a. Gustave Eiffel went through layers of bureaucracy to finally get an approval for his monument
   b. Even though, the authorities initially were not fond of the Eiffel Tower's design, they warmed up to it later
   c. Because of his engineering background, the design of the Eiffel Tower came quite naturally to Gustave Eiffel
   d. The Eiffel tower at time of completion was an engineering feat that was unprecedented and later became an iconic landmark of the city of Paris

Reading Passage 2
Read the following passage and answer the questions.

There is no such thing as a "brief" history of the Olympics. That's because the Olympics started thousands of years ago in Ancient Greece. Greek city-states used to send athletes to compete against each other with the reputation of the city and its people on the line. These ancient games helped create peace among the cities by bringing people together for friendly competitions.

The modern Olympics began in 1896, but the first one was very different to the Olympics we know today. Only 14 countries and 176 athletes, all of them men, competed in the games, which were hosted in Athens. Still, the Olympics were successful and helped to improve cooperation between nations. Just four years later women competed in the 1900 Olympics in Paris.

Over time the Olympics grew more popular and more nations started sending competitors. In 1924, the winter Olympics was started. The first winter Olympics was hosted in Chamonix, France. Only 16 nations and 258 athletes participated, competing in just 16 different events. Like the summer Olympics, however, the winter games gradually became more popular.
Following World War II, the Olympics became an important part of the Cold War and were vital in maintaining world peace. During the Cold War, the world was divided between communism and capitalism, with the Soviet Union and United States competing intensely with each other. The Olympics were one of the main ways in which these two nations competed. At the same time, many new nations were coming into existence. With the colonial empires of France, the United Kingdom, and others crumbling, new countries were founded. Many of these countries wanted to prove themselves to the world, and the Olympics was one way to do so.

From humble beginnings, the Olympic games have evolved into the grandest games on earth. In fact, the Rio Olympics saw 205 countries and over 10,000 athletes competing in 302 separate events. Furthermore, while the Olympics was predominantly hosted by developed countries through much of their modern history, the recent games have been hosted in developing nations, such as Brazil and China. Many up-and-coming nations now view the Olympics as a way to announce their prosperity to the world.

Currently, the United States dominates the world stage, and has taken home the most medals in nearly every summer Olympics over the past few decades. During the Beijing Olympics in 2008, China came close to taking home the most medals but couldn't quite beat the United States.

Criticism over the costs and burden of the games has increased recently. Norway pulled out of a winter Olympics bid just a few years ago because its citizens didn't want to deal with the hassle. Meanwhile, the summer Olympics in Rio de Janeiro faced many setbacks and challenges.

9. According to the article, what does the word 'hassle' in the last paragraph imply?

a. the prestige and glamor of hosting the Olympics
b. Inflow of thousands of tourists following the games
c. thousands of hours of labor required to host the Olympics
d. the cost and burden of hosting the Olympics

10. Which of the following statements is false about the article?
a. Even though the games have increased in scale and popularity, criticism about the economical and social burden of hosting has also been rising
b. Olympics were typically hosted by well-developed nations up until recently, when the olympics were hosted by emerging nations
c. During the Cold war, nations have used the Olympics to push political agenda, fueled by tensions between the ideologies of capitalism and communism
d. Similar to how the games helped bring peace between Greek cities, the Olympics also contributed to keeping peace during the Cold War

11. Which of the following words best replace the phrase 'up-and-coming' in paragraph 5?
a. emerging
b. impending
c. struggling
d. evolving

12. What is the main contrast between the start and the end of the passage?
a. Early Olympics emphasized peace over athletic achievements, while modern olympics solely focuses on athletic achievements
b. First iterations of the modern Olympics were limited to athletes from developed nations, while it was only recently that athletes from emerging countries were allowed to compete
c. Both the Greek olympics and modern Olympics were created to create a platform for cities and nations to get together and keep peace
d. While early iterations of the modern Olympics were purely athletic events, it later evolved into a show of prosperity further creating economic and social burden for hosts

Reading Passage 3
Read the following passage from the speech and answer the questions.

Why do animals hibernate?

Certain animals hibernate because food supplies become scarce during the winter months. By going into a long deep sleep, they bypass this period completely, waking up when food becomes more plentiful. Bears are most commonly associated with hibernation (although they are not considered true hibernators, because their body temperature doesn't lower significantly), but a variety of animals take advantage of this evolved adaptation, including the jumping mouse, little brown bat, eastern chipmunk, woodchuck, and certain species of ground squirrels. At least one bird is known to be a hibernator—the poorwill, which lives in western North America.

It is believed that a compound in the blood of hibernators known as HIT (Hibernation Induction Trigger) lets animals know when it's time to prepare for hibernation. Shorter days, diminishing food supplies, and colder temperatures all appear to influence HIT, though the exact mechanism remains a mystery.

Hibernators tend to eat a lot of extra food in the fall in anticipation of their winter slumber and build significant stores of white and brown body fat to tide them over. Brown fat provides extra body heat as well as needed energy when the animal wakes up. Some animals also store food in their dens to consume during brief periods of wakefulness. Hibernation is nothing like a regular night's sleep. In fact, significant physical changes occur within the body during the hibernation period. An animal's body temperature plunges, and its respiration and heart rate slow dramatically. The effect can be so extreme that a hibernating animal may appear dead.

Several factors can influence hibernation. In regions where the winter is relatively mild, animals may hibernate for only brief periods or not at all. During periods of long hibernation, many animals will rouse briefly to go to the bathroom and eat a snack before falling asleep again. Certain species of bears are unique in that they do not awaken, eat, drink, or go to the bathroom during their hibernation period, which can last several months.

13. What does the word "rouse" mean in paragraph 5?
a. Go on a walk
b. Consume food
c. To be awakened
d. To stimulate

14. According to the passage, which of the following is an <u>INCORRECT</u> statement?

a. All bears hibernate during the winter months
b. Where the winters are mild, animals hibernate for only brief periods of time.
c. Compound of HIT in the blood let animals know it's time for hibernation
d. At least, the bird Poorwill hibernates.

15. What is one of the reasons some animals don't hibernate during the winter?
    a. The decision to hibernate is a conscious decision
    b. When there's food scarcity
    c. If they are in warmer regions where winters are relatively mild
    d. If they had hibernated longer than usual in the prior winter

16. According to the passage, what is a distinct feature of true hibernation?
    a. Carrying HIT compound in their blood
    b. Significant drop in body temperature when hibernation occurs
    c. Increased food consumption and fat storage in anticipation of winter
    d. Appearing dead

17. What triggers hibernation in animals?
    a. Shorter days and colder temperatures
    b. Dwindling food supplies
    c. This field is not extensively researched
    d. The exact trigger remains unknown

18. Which of the following is the most appropriate summary of the passage?
    a. Hibernation is a natural phenomenon that affects bears and results in significant physical changes ranging from low body temperature and heart rate to slowed respiration.
    b. Many species of animals hibernate to bypass winters when food sources are scarce. Even though the exact trigger of hibernation still remains a mystery, associated physical changes and the animals affected are well studied.
    c. When animals anticipate food to be scarce, they tend to consume more food in order to hibernate and bypass winter. This instinct is triggered by a specific compound known as HIT.
    d. Animals that hibernate are known as hibernators and their behavior leading up to winters are well documented.

Part 2 Practical application
The following exercises test your ability to recognize grammar and usage errors. Select the best answer among the choices given.

19. After the social science lecture all students are invited to take parts in a discussion of the issues which were raised in the talk.
    a. social science lecture
    b. to take parts
    c. of the issues
    d. raised in

20. If you lend me that book, I promise that I will give it back by Friday on the latest.
    a. lend
    b. I promise
    c. give it back
    d. on the latest

21. Many infected people quietly carry the infection without knowing, in some cases for up to 30 years if it doesn't prove fatal early.
    a. knowing
    b. in some cases
    c. it doesn't
    d. early

22. Although it has it's faults, the US constitution is reckoned to be a highly successful experiment in participatory democracy.
    a. has it's
    b. is reckoned
    c. highly successful
    d. participatory

23. The findings were based on satellite imagery that assess how tree cover changed over time.
    a. findings
    b. that assess
    c. how
    d. over time

24. Although he and his mother had shipped their luggage two weeks prior, it has not arrived when they reached their destination.
    a. he
    b. their
    c. prior
    d. has not arrived

25. It's <u>common for</u> homes in this dusty area <u>to build</u> without doors or roofs, without electricity and running water, <u>and</u> for <u>inhabitants</u> to share their homes with animals.
    a. common for   c. and
    b. to build   d. inhabitants

For the following exercise, choose the most appropriate option to complete the sentences.

26. My roommate complained about all the bugs ____ around since we moved in.
    a. to be flying   c. to being flown
    b. have flown   d. having been flying

27. All of these houses, ____ are falling apart already, will be put down.
    a. what   c. for which
    b. that   d. which

28. My cousin shared his lunch with me, ____ was very kind of him.
    a. where   c. which
    b. that   d. what

29. He drove instead of flying ___ he could stop by his uncle on the way there.
    a. so that   c. hence
    b. in case   d. however

30. We lost our final game and ____ we didn't make it to the top 16.
    a. therefore   c. however
    b. notwithstanding   d. since

31. When he ____ from the company he ____ for 20 years, he felt devastated.
    a. has been fired / has worked   c. was fired / had been working
    b. fired / had worked   d. had been fired / has worked

32. By the time I ____ enough money, it ____ too late to turn things around.
    a. save / has been   c. had saved / was
    b. had saved / has been   d. have saved / was

For the following exercises choose the correct word to fill in the blank.

33. The hurricane had no significant ____ on wild life.
    a. affect   c. fact
    b. effect   d. damage

34. Everyone had dinner, ____ for Diana.
    a. except   c. expect
    b. accept   d. excerpt

35. He wants the ____ to make a special cake.
    a. actor   c. operator
    b. butcher   d. baker

36. You'll get a better exchange ____ at the bank.
    a. value   c. worth
    b. rate   d. change

37. The American Express credit card is ____ at most retail stores.
    a. reserved   c. accepted
    b. exchanged   d. expected

38. It is advised to open a bank ____ when you turn 18.
    a. account   c. deposit
    b. branch   d. count

39. How much do you ____ for a private lesson?
    a. sell   c. buy
    b. lend   d. charge

40. He was _____ $ 200 for driving over the speed limit.
    a. bound   c. billed
   b. fined   d. loaned

Math & Logic

41. Find the average rate of change between f(2) and f(7).

x	1	2	3	4	5	6	7	8	9
f(x)	5	10	15	20	20	30	40	50	60

    a. 10   c. 8
    b. 6   d. 5

42. Adam is taller than John and shorter than Charles. David is shorter than Charles and taller than Adam. Is the statement "John is taller than David" true or false?
    a. True   c. Not enough information is given
    b. False   d. John and David are the same height

43. There are 5 horses ready at the start line of a race. Horse B is positioned to the right of the Horse A, but is not positioned next to Horse C. Horse C is positioned next to Horse D, which has Horse B on its left side. Horse E is positioned furthest from Horse C. Which horse DOES NOT have a horse to the right of it?
    a. Horse E   c. Horse C
    b. Horse B   d. Horse D

44. A business is considering a printer supplier that offers a printer price and a monthly support fee. Company A has a monthly support fee of $250 and charges $100 for each printer. Company B has a monthly support fee of $200 and charges $150 for each printer. Find out how many printers would make the two plans equal. Round to the nearest printer.
    a. 25   c. 20
    b. 10   d. 1

45. If John deposits $250 in the bank and is offered 8% annual interest, how much would he have in his savings account in three years? Assume a compound interest and round to the nearest dollar.

Formula: $Future\ Value = Present\ Value * (1 + i)^n$

    a. 350   c. 315
    b. 750   d. 310

46. In the chart below, the average precipitation per month for the city of Denver is illustrated. What is the approximate ratio of precipitation between May and October?
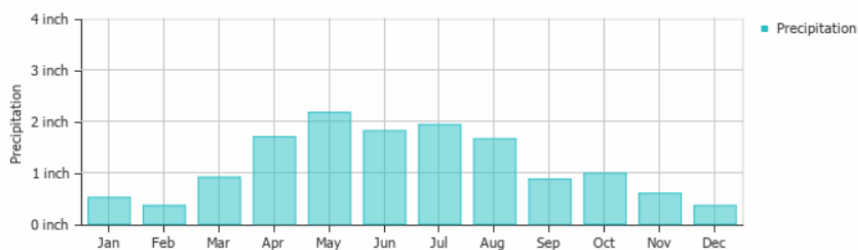

    a. 3:1   c. 1:4
    b. 2:1   d. 2:3

47. Use the following formula and input to find R_f

$$r = R_f + ß(R_m + R_f)$$

r=0.08, ß=2 ; R_m=0.075

   a. 0.233   c. 0.333
    b. 0.5   d. 0.67

48. The startup cost for a hat store is $320,000, and each hat costs $10 for the store to buy. If each hat is then sold for $26, how many hats do they need to sell to break even (make profit of $0)?
    a. 18,000   c. 20,000
    b. 12,000   d. 26,000

49. The following chart shows the average yearly price per kilogram of beef in Ulaanbaatar. According to the graph below, the average price of beef in 2005 is approximately what percentage of the price in 2018?
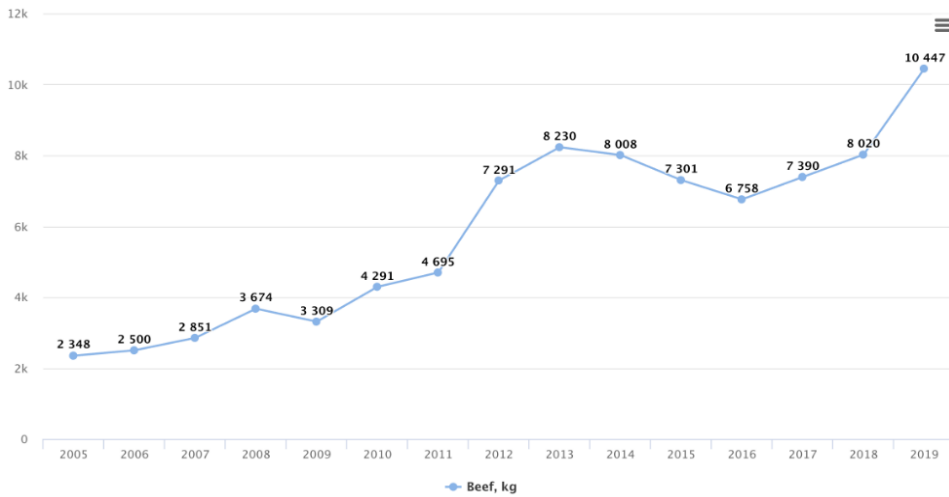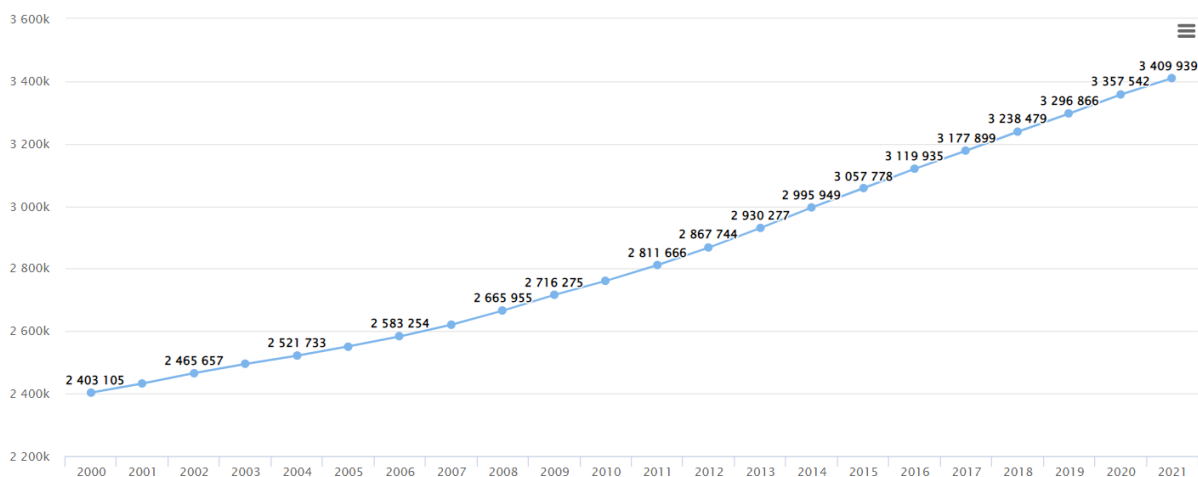

a. 29.3%   c. 17.3%
b. 37.8%   d. 50%

50. Take a look at the chart below for the wireless headphone production of three different companies. What is the average wireless headphones produced by Company B during 2018-2021 period?
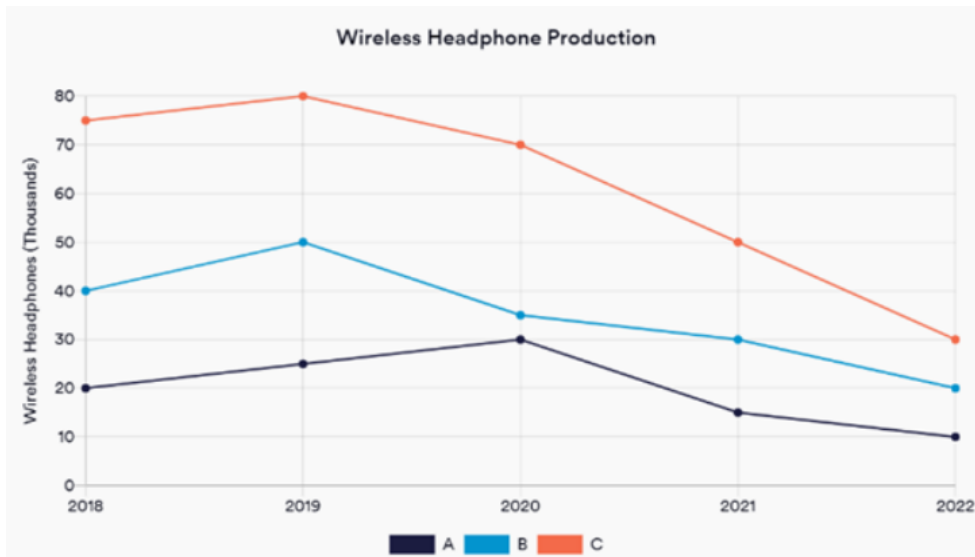
a. 40   c. 50
b. 35   d. 38.75

51. From the chart of the population of Mongolia shown below, find the average annual rate of population growth between 2002 and 2016.

a. 43,618   c. 45,000
b. 51,143   d. 39,317

52. Find the distance between (2,2) and (-1,-11). Round to the nearest integer.

Distance equation: $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

    a. 10   c. 19
    b. 13   d. 1

53. Which is equivalent to $\sqrt{18} - 4\sqrt{8} + 2\sqrt{50}$?

    a. $5\sqrt{2}$ c. $-\sqrt{60}$
    b. $3\sqrt{2}$ d. $-5\sqrt{2}$

54. $f(x) = 2x - 1$ and $g(x) = x^2 + 3$ What is the value of $g(f(-1))$?

    a. -6   c. -4
    b. 4   d. 12

55. $\log\alpha = 0.30$ and $\log b = 0.47$ Which of the following has a value of 0.77?

    a. $\log(\alpha + b)$ c. $\log(\alpha b)$
    b. $\log\alpha$ d. $(\log\alpha)(\log b)$

56. The reduced form of $\frac{((1-i)(2+i))}{(1+i)}$ is

    a. $1 + i$ c. $-2 - i$
    b. $-2 + 2i$ d. $1 - 2i$

57. What is the solution set for $|3x-9|>4$?

    a. $x > {}^{13}/_3$ or $x < {}^{5}/_3$ c. $x > {}^{5}/_3$ or $x < {}^{-5}/_3$
    b. $x > {}^{13}/_3$ or $x < {}^{-13}/_3$ d. $x > {}^{13}/_3$

58. The simplified form of $2x^{(3/2)} \cdot 3x^{(-2/3)}$ is

    a. $6x$ c. $6x^{(-2)}$
    b. $6x^{(5/3)}$ d. $6x^{(5/6)}$

59. Which is the inverse function, $f^{-1}(x)$, of $f(x) = 3x - {}^1/_2$?

    a. $f^{-1}(x) = ({}^1/_3)x - 2$ c. $f^{-1}(x) = ({}^{-1}/_3)x + {}^1/_6$
    b. $f^{-1}(x) = ({}^1/_3)x + {}^1/_6$ d. $f^{-1}(x) = ({}^1/_3)x^{-1/6}$

60. Which is the equation of a line, in standard form, with y-intercept -3 and parallel to the line $2x + 5y - 8 = 0$?

    a. $2x + 5y + 15 = 0$ c. $5x + 2y - 15 = 0$
    b. $-2x + 5y - 15 = 0$ d. $-5x + 2y + 3 = 0$

61. From the following graph, calculate the slope of the linear function.
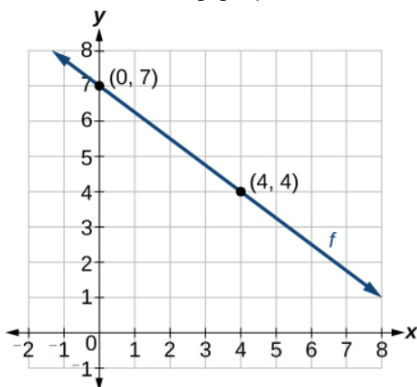
    a. 0.75   c. 0.66
    b. -0.75   d. -0.66

62. Also using the graph above (Exercise 61), calculate the x-intercept

    a. 7.75   c. 9.33
    b. 8.33   d. 8.66

63. Will the linear function of y=0.5x+2 intercept the linear function in the graph above (Exercise 61)? If so, what is the intersection point?

    a. (4,4)   c. (4.75,5)
    b. (0.66,5)   d. It will not intercept

64. What is the probability of getting two tails when two coins are tossed?

    a. 1/6   c. 1/3

    b. 1/2   d. 1/4

65. In a box, there are 8 orange, 7 white, and 6 blue balls. If a ball is picked up randomly, what is the probability that it is neither orange nor blue?

    a. 1/3   c. 2/21

    b. 1/21   d. 5/21

66. What is the probability of getting at least one head if three unbiased coins are tossed?

    a. 7/8   c. 5/8

    b. 1/2   d. 8/9
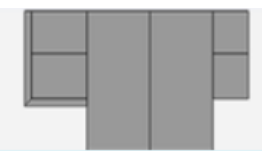
67. From the following series, what number should fill in the blank?

8, 43, 11, 41, __, 39, 17

    a. 15   c. 42

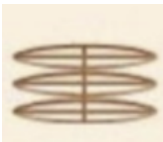   b. 14   d. 43
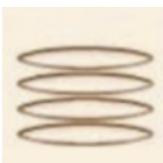
68. Which of the following is the correct rooftop layout of the house displayed below?
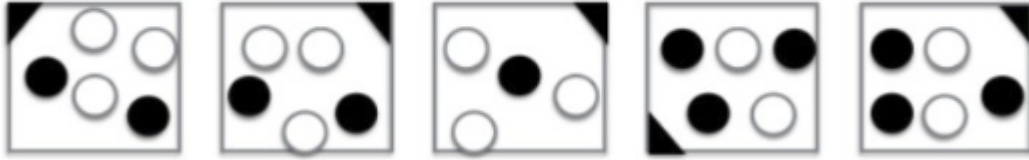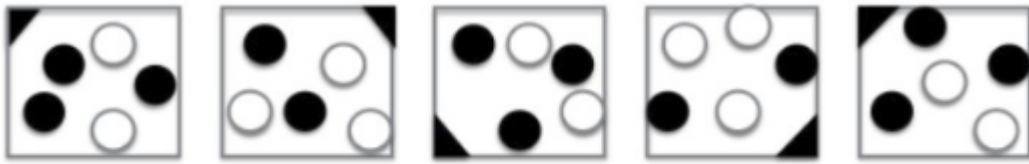

a.

b.

c.

d.

69. Which of the boxes come in the next sequence?
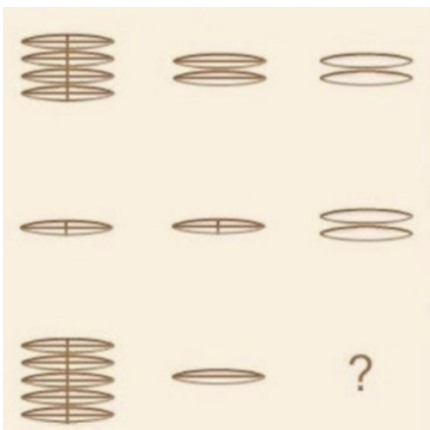
a.

b.

c.

d.

70. Which of the boxes come next in the sequence

A   B   C   D   E

a. A
b. B

c. C
d. D