Math Test – No Calculator

25 MINUTES, 20 QUESTIONS

Turn to Section 3 of your answer sheet to answer the questions in this section.

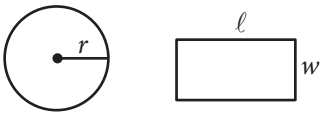
DIRECTIONS

For questions 1-15, solve each problem, choose the best answer from the choices provided, and fill in the corresponding circle on your answer sheet. **For questions 16-20**, solve the problem and enter your answer in the grid on the answer sheet. Please refer to the directions before question 16 on how to enter your answers in the grid. You may use any available space in your test booklet for scratch work.

NOTES

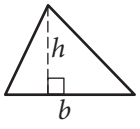
1. The use of a calculator **is not permitted**.
2. All variables and expressions used represent real numbers unless otherwise indicated.
3. Figures provided in this test are drawn to scale unless otherwise indicated.
4. All figures lie in a plane unless otherwise indicated.
5. Unless otherwise indicated, the domain of a given function f is the set of all real numbers x for which $f(x)$ is a real number.

REFERENCE

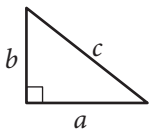


$A = \pi r^2$
$C = 2\pi r$

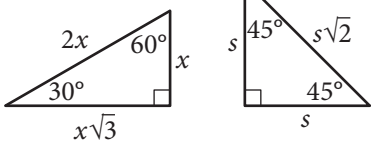
$A = \ell w$



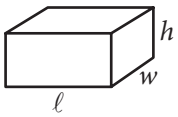
$A = \frac{1}{2}bh$



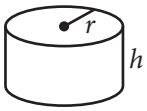
$c^2 = a^2 + b^2$



Special Right Triangles

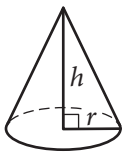


$V = \ell wh$

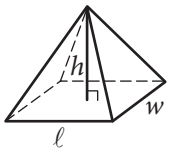


$V = \pi r^2 h$

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



$V = \frac{1}{3}\pi r^2 h$



$V = \frac{1}{3}\ell wh$

The number of degrees of arc in a circle is 360.
The number of radians of arc in a circle is 2π.
The sum of the measures in degrees of the angles of a triangle is 180.

1

What is the solution to the equation $2x + 3 = 7$?

A) 1

B) 1.5

C) 2

D) 4

2

$$(2x^3 + 3x)(x^3 - 2x)$$

Which of the following is equivalent to the expression above?

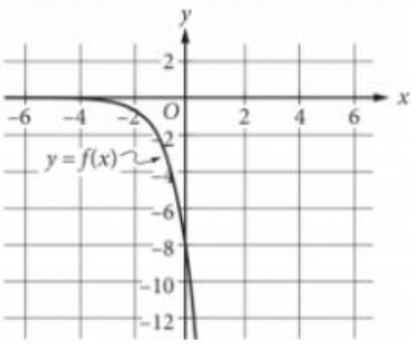
A) $x^3 + 5x$

B) $3x^3 + x$

C) $2x^6 - x^4 - 6x^2$

D) $3x^6 - x^4 - 6x^2$

3



The graph of $y = f(x)$ is shown in the xy-plane. What is the value of $f(0)$?

A) –8

B) –4

C) –1

D) 0

4

The City Transit bus line charges \$2 for an adult and \$1 for a child to ride one way. During a certain 4-hour shift, a bus driver collected \$1,171 from 617 riders. Which of the following systems of equations could be used to determine the number of adult riders, A, and the number of child riders, C, during this 4-hour shift?

A) $2A + C = 4(1{,}171)$
$A + C = 4(617)$

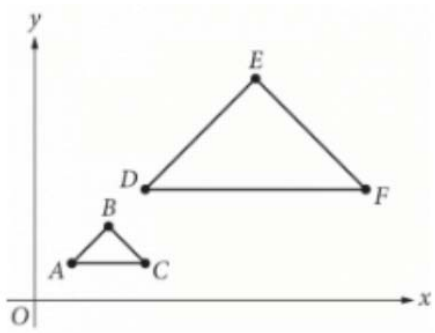
B) $4(2A) + 4C = 1{,}171$
$4(A + C) = 617$

C) $2A + C = 617$
$A + C = 1{,}171$

D) $2A + C = 1{,}171$
$A + C = 617$

CONTINUE

5



In the xy-plane above, a dilation with center O and scale factor 3 transforms triangle ABC to triangle DEF. Which of the following statements is NOT true?

A) The perimeter of triangle DEF is 3 times the perimeter of triangle ABC.

B) The measure of angle E is 3 times the measure of angle B.

C) The length of $\overline{AB}$ is $\frac{1}{3}$ the length of $\overline{DE}$.

D) Angle A is congruent to angle D.

6

In the xy-plane, the y-coordinate of the y-intercept of the graph of the function f is c. Which of the following must be equal to c ?

A) $f(0)$

B) $f(1)$

C) $f(2)$

D) $f(3)$

7

The length of a rectangular tile is 4 times the width of the tile. If the area of the tile is 144 square inches, what is the width of the tile, in inches?

A) 6

B) 12

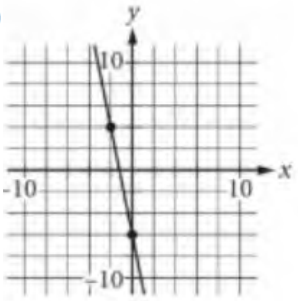
C) 24

D) 36

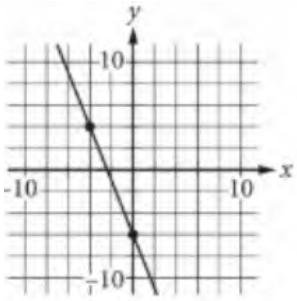
8

Which of the following is the graph of $y - 5x = -6$ in the xy-plane?

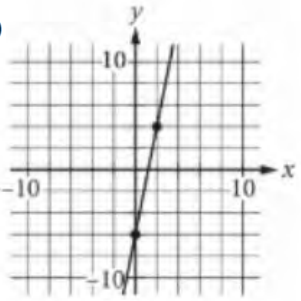
A)



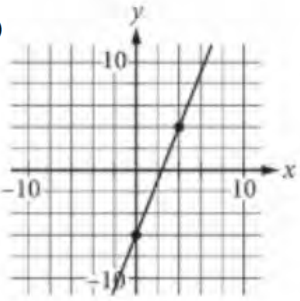
C)



B)



D)



CONTINUE

9

x	$f(x)$
–1	–2
2	4

The table shown gives some values of x and the corresponding values of $f(x)$, where f is a linear function. If $y = f(x)$ is graphed in the xy-plane, what is the y-coordinate of the y-intercept of the graph?

A) 1

B) 0.5

C) 0

D) –1

10

$$A = 1{,}321 + 0.3433m$$

The equation above can be used to estimate the body surface area A, in square centimeters, of a child with mass m, in grams, where $3{,}000 \leq m \leq 30{,}000$. Which of the following statements is consistent with the equation?

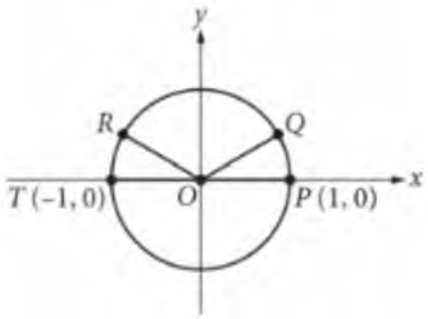
A) For each increase of 1 gram in mass, A increases by approximately 0.3433 square centimeter.

B) For each increase of 0.3433 gram in mass, A increases by approximately 1 square centimeter.

C) For each increase of 1 gram in mass, A increases by approximately 1,321 square centimeters.

D) For each increase of 1,321 grams in mass, A increases by approximately 1 square centimeter.

11



In the xy-plane above, points P, Q, R, and T lie on the circle with center O. The degree measures of angles POQ and ROT are each 30°. What is the radian measure of angle QOR ?

A) $\frac{5}{6}\pi$

B) $\frac{3}{4}\pi$

C) $\frac{2}{3}\pi$

D) $\frac{1}{3}\pi$

12

$$\frac{4x^2}{x^2-9} - \frac{2x}{x+3} = \frac{1}{x-3}$$

What value of x satisfies the equation above?

A) –3

B) $-\frac{1}{2}$

C) $\frac{1}{2}$

D) 3

CONTINUE

13

A right circular cone has a volume of $\frac{1}{3}\pi$ cubic feet and a height of 9 feet. What is the radius, in feet, of the base of the cone?

A) $\frac{1}{3}$

B) $\frac{1}{\sqrt{3}}$

C) $\sqrt{3}$

D) 3

14

Which of the following is equivalent to $r^{\frac{2}{5}} \cdot \sqrt{r}$, where $r > 0$?

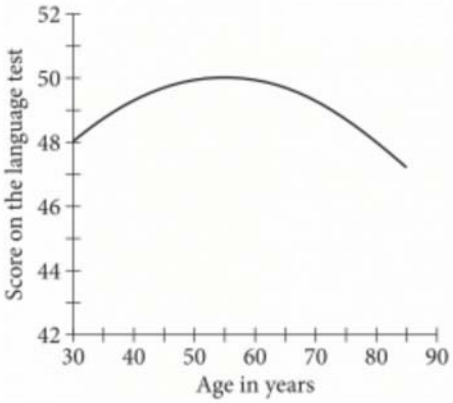
A) $r^{\frac{1}{5}}$

B) $r^{\frac{3}{10}}$

C) $r^{\frac{3}{7}}$

D) $r^{\frac{9}{10}}$

15



A scientist tested a group of adults aged 30 to 85. The graph shows the quadratic function S, which models their scores on a language test as a function of their age x, in years. Which of the following could define S?

A) $S(x) = -\frac{1}{320}(x-50)^2 + 55$

B) $S(x) = -\frac{1}{320}(x-55)^2 + 50$

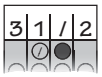
C) $S(x) = \frac{1}{320}(x-50)^2 + 55$

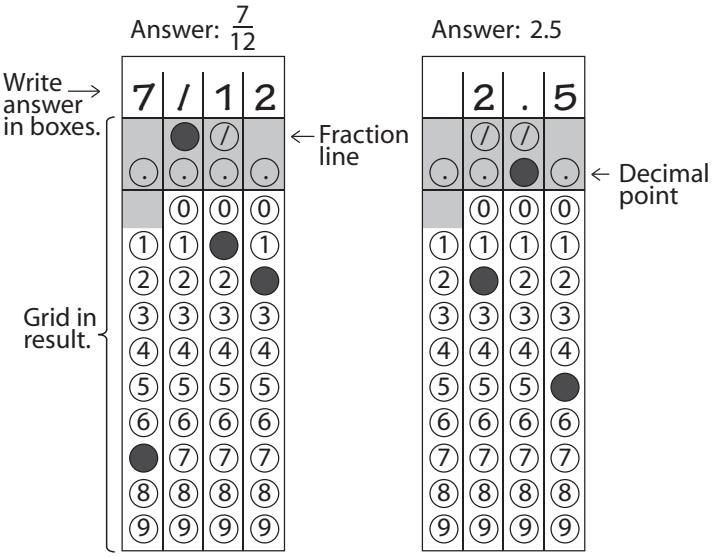
D) $S(x) = \frac{1}{320}(x-55)^2 + 50$

CONTINUE

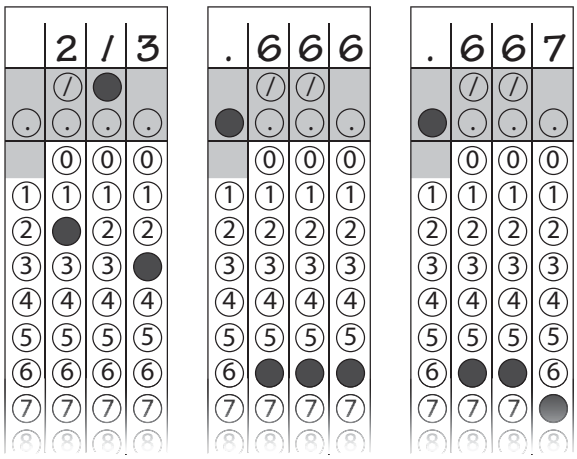
DIRECTIONS

For questions 16–20, solve the problem and enter your answer in the grid, as described below, on the answer sheet.

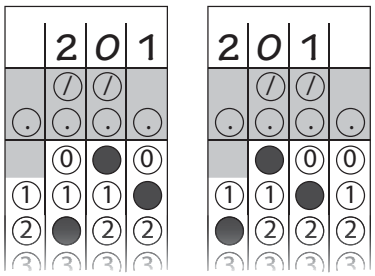
1. Although not required, it is suggested that you write your answer in the boxes at the top of the columns to help you fill in the circles accurately. You will receive credit only if the circles are filled in correctly.
2. Mark no more than one circle in any column.
3. No question has a negative answer.
4. Some problems may have more than one correct answer. In such cases, grid only one answer.
5. **Mixed numbers** such as $3\frac{1}{2}$ must be gridded as 3.5 or 7/2. (If  is entered into the grid, it will be interpreted as $\frac{31}{2}$, not $3\frac{1}{2}$.)
6. **Decimal answers:** If you obtain a decimal answer with more digits than the grid can accommodate, it may be either rounded or truncated, but it must fill the entire grid.



Acceptable ways to grid $\frac{2}{3}$ are:



Answer: 201 – either position is correct



NOTE: You may start your answers in any column, space permitting. Columns you don't need to use should be left blank.

CONTINUE

16

On a 210-mile trip, Cameron drove at an average speed of 60 miles per hour for the first x hours. He then completed the trip, driving at an average speed of 50 miles per hour for the remaining y hours. If $x = 1$, what is the value of y ?

17

$$2zw^2 - 3w - 10 = 2z$$

In the equation above, what is the value of z when $w = 2$?

18

$$x - 2\sqrt{x} - 3 = 0$$

What value of x satisfies the equation above?

19

$$x + y = 2$$
$$x - y = 3$$

If (x, y) is the solution to the system of equations above, what is the value of x?

20

$$2k(x - 2) = x - 2$$

In the equation above, k is a constant. If the equation has infinitely many solutions, what is the value of k ?

STOP

If you finish before time is called, you may check your work on this section only. Do not turn to any other section.

Math Test – Calculator

55 MINUTES, 38 QUESTIONS

Turn to Section 4 of your answer sheet to answer the questions in this section.

DIRECTIONS

For questions 1-30, solve each problem, choose the best answer from the choices provided, and fill in the corresponding circle on your answer sheet. **For questions 31-38**, solve the problem and enter your answer in the grid on the answer sheet. Please refer to the directions before question 31 on how to enter your answers in the grid. You may use any available space in your test booklet for scratch work.

NOTES

1. The use of a calculator **is permitted**.
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3. Figures provided in this test are drawn to scale unless otherwise indicated.
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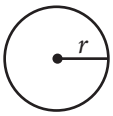
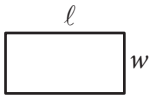
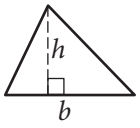
REFERENCE



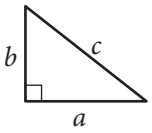
$A = \pi r^2$
$C = 2\pi r$



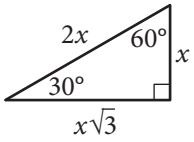
$A = \ell w$

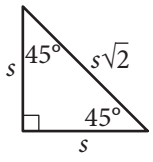


$A = \frac{1}{2}bh$

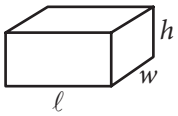


$c^2 = a^2 + b^2$

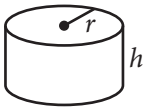




Special Right Triangles

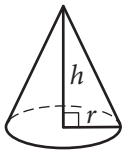


$V = \ell wh$

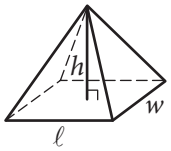


$V = \pi r^2 h$

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



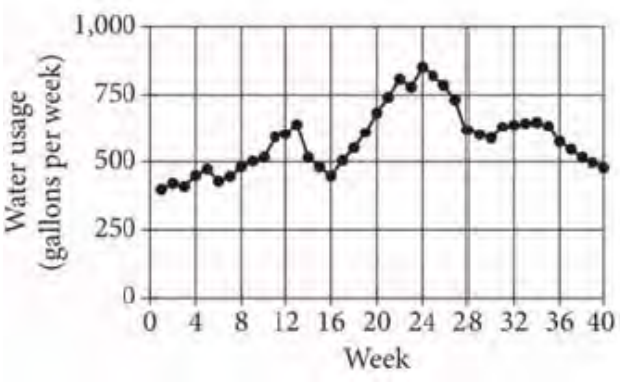
$V = \frac{1}{3}\pi r^2 h$



$V = \frac{1}{3}\ell wh$

The number of degrees of arc in a circle is 360.
The number of radians of arc in a circle is 2π.
The sum of the measures in degrees of the angles of a triangle is 180.

1



The graph above shows the Chen family's water usage over 40 weeks. During which of the following periods was the family's water usage above 750 gallons per week?

A) From week 5 through week 8

B) From week 13 through week 17

C) From week 22 through week 26

D) From week 33 through week 36

2

The distance between two locations on a map is 6 centimeters (cm). If 1 cm on the map corresponds to an actual distance of 15 miles, what is the actual distance, in miles, between the two locations?

A) 0.4

B) 2.5

C) 90

D) 150

3

A store received a shipment of 1,000 MP3 players, 4 of which were defective. If an MP3 player is randomly selected from this shipment, what is the probability that it is defective?

A) 0.004

B) 0.04

C) 0.4

D) 4

4

$$f(x) = (x + 0.25x)(50 - x)$$

The function f is defined above. What is the value of $f(20)$?

A) 250

B) 500

C) 750

D) 2,000

CONTINUE

5

Which of the following expressions is equivalent to $2(ab - 3) + 2$?

A) $2ab - 1$

B) $2ab - 4$

C) $2ab - 5$

D) $2ab - 8$

6

What number is 20% greater than 60?

A) 50

B) 72

C) 75

D) 132

7

The graph of $y = 3x - 5$ in the xy-plane is a line. What is the slope of the line?

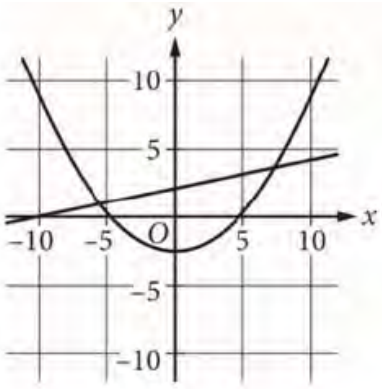
A) -5

B) $\frac{1}{3}$

C) 3

D) 5

8



A system of equations consists of a quadratic equation and a linear equation. The equations in this system are graphed in the xy-plane above. How many solutions does the system have?

A) 0

B) 1

C) 2

D) 3

CONTINUE

9

$$2n + 6 = 14$$

A tree had a height of 6 feet when it was planted. The equation above can be used to find how many years n it took the tree to reach a height of 14 feet. Which of the following is the best interpretation of the number 2 in this context?

A) The number of years it took the tree to double its height

B) The average number of feet that the tree grew per year

C) The height, in feet, of the tree when the tree was 1 year old

D) The average number of years it take similar trees to grow 14 feet

10

Residents of a town were surveyed to determine whether they are satisfied with the concession stand at the local park. A random sample of 200 residents was selected. All 200 responded, and 87% said they are satisfied. Based on this information, which of the following statements must be true?

I. Of all the town residents, 87% would say they are satisfied with the concession stand at the local park.

II. If another random sample of 200 residents were surveyed, 87% would say they are satisfied.

A) Neither

B) I only

C) II only

D) I and II

11

In the xy-plane, the graph of $y = x + 3$ intersects the graph of $y = 2x - 6$ at the point (a, b). What is the value of a?

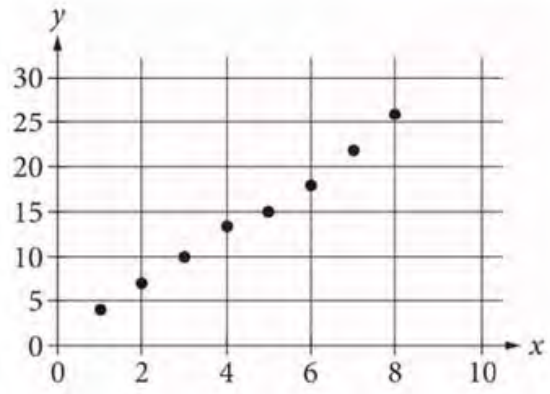
A) 3

B) 6

C) 9

D) 12

12



Which of the following could be the equation for a line of best fit for the data shown in the scatterplot above?

A) $y = 3x + 0.8$

B) $y = 0.8x + 3$

C) $y = -0.8x + 3$

D) $y = -3x + 0.8$

13

$$(8-\sqrt{x})^2=(4+\sqrt{x})^2$$

What is the solution to the equation above?

A) $x=2$

B) $x=4$

C) $x=8$

D) $x=16$

14

A fish hatchery has three tanks for holding fish before they are introduced into the wild. Ten fish weighing less than 5 ounces are placed in tank A. Eleven fish weighing at least 5 ounces but no more than 13 ounces are placed in tank B. Twelve fish weighing more than 13 ounces are placed in tank C. Which of the following could be the median of the weights, in ounces, of these 33 fish?

A) 4.5

B) 8

C) 13.5

D) 15

15

In triangle ABC, the measure of angle A is 50°. If triangle ABC is isosceles, which of the following is NOT a possible measure of angle B ?

A) 50°

B) 65°

C) 80°

D) 100°

16

In the xy-plane, a circle with radius 5 has center $(-8, 6)$. Which of the following is an equation of the circle?

A) $(x-8)^2+(y+6)^2=25$

B) $(x+8)^2+(y-6)^2=25$

C) $(x-8)^2+(y+6)^2=5$

D) $(x+8)^2+(y-6)^2=5$

CONTINUE

Questions 17 and 18 refer to the following information.

According to the 2010 Census, the adult population aged 18 or greater of the United States in 2010 was 234,564,071. In 2010, a survey was conducted among a randomly chosen sample of adults aged 18 or greater in the United States about their preference to live in a warm climate or a cool climate. The table below displays a summary of the survey results.

	Warm	Cool	No preference	Total
18-35 years old	295	168	45	508
36-50 years old	246	123	41	410
51-65 years old	238	117	48	403
Greater than 65 years old	137	78	64	279
Total	916	486	198	1,600

17

Based on the data, which of the following is closest to the probability that a randomly selected adult who is 18-35 years old prefers to live in a cool climate?

A) 0.11

B) 0.30

C) 0.33

D) 0.49

18

Which of the following is closest to the difference between the percentage of adults aged 18-50 years who responded "warm" and the percentage of adults aged 51 years or greater who responded "warm"?

A) 4%

B) 5%

C) 10%

D) 18%

19

Which of the following speeds is equivalent to 90 kilometers per hour? (1 kilometer = 1,000 meters)

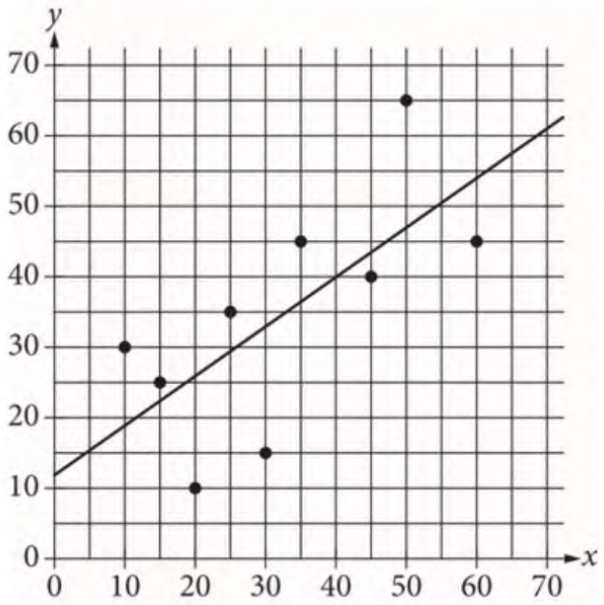
A) 25 meters per second

B) 32 meters per second

C) 250 meters per second

D) 324 meters per second

20



The scatterplot in the xy-plane above shows nine points (x, y) and a line of best fit. Of the following, which best estimates the amount by which the line underestimates the value of y when $x = 50$?

A) 8

B) 10

C) 13

D) 18

21

A certain elephant weighs 200 pounds at birth and gains more than 2 but less than 3 pounds per day during its first year. Which of the following inequalities represents all possible weights w, in pounds, for the elephant 365 days after its birth?

A) $400 < w < 600$

B) $565 < w < 930$

C) $730 < w < 1{,}095$

D) $930 < w < 1{,}295$

22

If $3(m + 2) - 5 = m + 2$, what is the value of $m + 2$?

A) 0

B) 2.5

C) 4.5

D) The given equation has no solution.

CONTINUE

23

The dwarf planet Makemake completes one orbit around the Sun every 310 years. Which of the following functions r models the number of orbits of Makemake in t years?

A) $r(t) = 310 + t$

B) $r(t) = 310t$

C) $r(t) = \frac{t}{310}$

D) $r(t) = \frac{310}{t}$

24

$$7x - 5y = 4$$
$$4x - 8y = 9$$

If (x, y) is the solution to the system of equations above, what is the value of $3x + 3y$?

A) -13

B) -5

C) 5

D) 13

25

A data set of 27 different numbers has a mean of 33 and a median of 33. A new data set is created by adding 7 to each number in the original data set that is greater than the median and subtracting 7 from each number in the original data set that is less than the median. Which of the following measures does NOT have the same value in both the original and the new data sets?

A) Median

B) Mean

C) Sum of the numbers

D) Standard deviation

26

The function f is linear, $f(2) = 17$, and $f(8) = 19$. If $f(x) = mx + b$, where m and b are constants, what is the value of b ?

A) 11

B) 13

C) $\frac{49}{3}$

D) $\frac{55}{3}$

27

Sample	Percent in favor	Margin of error
A	52%	4.2%
B	48%	1.6%

The results of two random samples of votes for a proposition are shown above. The samples were selected from the same population, and the margins of error were calculated using the same method. Which of the following is the most appropriate reason that the margin of error for sample A is greater than the margin of error for sample B?

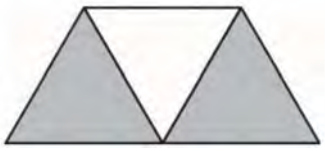
A) Sample A had a smaller number of votes that could not be recorded.

B) Sample A had a higher percent of favorable responses.

C) Sample A had a larger sample size.

D) Sample A had a smaller sample size.

28



A graphic designer is creating a logo for a company. The logo is shown in the figure above. The logo is in the shape of a trapezoid and consists of three congruent equilateral triangles. If the perimeter of the logo is 20 centimeters, what is the combined area of the shaded regions, in square centimeters, of the logo?

A) $2\sqrt{3}$

B) $4\sqrt{3}$

C) $8\sqrt{3}$

D) 16

29

Kao measured the temperature of a cup of hot chocolate placed in a room with a constant temperature of 70 degrees Fahrenheit (°F). The temperature of the hot chocolate was 185°F at 6:00 p.m. when it started cooling. The temperature of the hot chocolate was 156°F at 6:05 p.m. and 135°F at 6:10 p.m. The temperature of the hot chocolate continued to decrease. Of the following functions, which best models the temperature $T(m)$, in degrees Fahrenheit, of Kao's hot chocolate m minutes after it started cooling?

A) $T(m) = 185(1.25)^m$

B) $T(m) = 185(0.85)^m$

C) $T(m) = (185 - 70)(0.75)^{\frac{m}{5}}$

D) $T(m) = 70 + 115(0.75)^{\frac{m}{5}}$

30

The equation $9x + 5 = a(x + b)$, where a and b are constants, has no solutions. Which of the following must be true?

I. $a = 9$

II. $b = 5$

III. $b \neq \frac{5}{9}$

A) None

B) I only

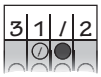
C) I and II only

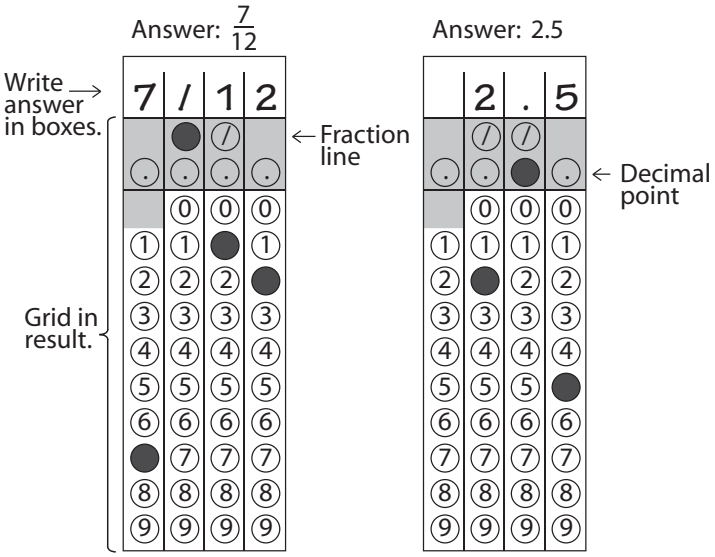
D) I and III only

CONTINUE

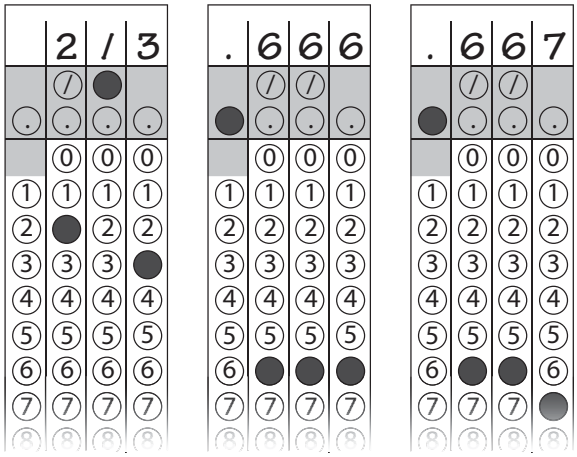
DIRECTIONS

For questions 31-38, solve the problem and enter your answer in the grid, as described below, on the answer sheet.

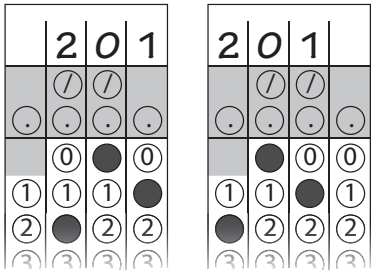
1. Although not required, it is suggested that you write your answer in the boxes at the top of the columns to help you fill in the circles accurately. You will receive credit only if the circles are filled in correctly.
2. Mark no more than one circle in any column.
3. No question has a negative answer.
4. Some problems may have more than one correct answer. In such cases, grid only one answer.
5. **Mixed numbers** such as $3\frac{1}{2}$ must be gridded as 3.5 or 7/2. (If  is entered into the grid, it will be interpreted as $\frac{31}{2}$, not $3\frac{1}{2}$.)
6. **Decimal answers:** If you obtain a decimal answer with more digits than the grid can accommodate, it may be either rounded or truncated, but it must fill the entire grid.



Acceptable ways to grid $\frac{2}{3}$ are:



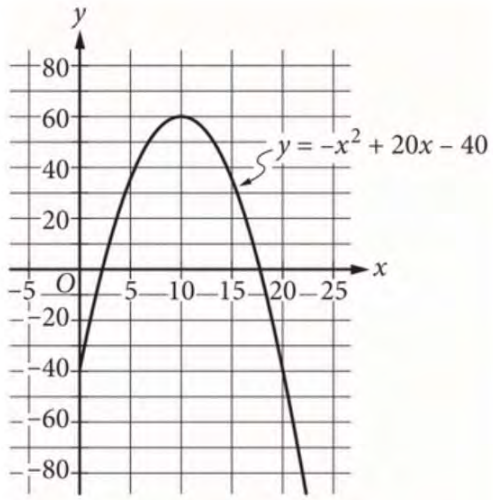
Answer: 201 – either position is correct



NOTE: You may start your answers in any column, space permitting. Columns you don't need to use should be left blank.

CONTINUE

31



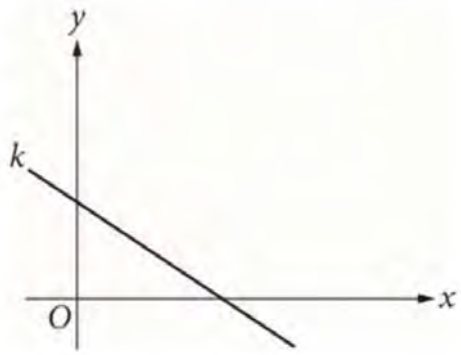
The graph above models the daily profit y, in dollars, that a school club expects to make from selling shirts for a price of x dollars. Based on the model, what is the maximum daily profit, in dollars? (Disregard the $ sign when gridding your answer.)

32

$$P = 686q$$

The formula above gives the theoretical power P, in kilowatts (kW), available from water falling from a certain height in terms of its flow rate, q, in cubic meters per second. What is the flow rate, in cubic meters per second, of water falling from the same height with a theoretical power of 1,029,000 kW?

33



In the xy-plane above, line k passes through the points (0, 2) and (3, 0). If the line k is defined by the equation $y = mx + b$, where m and b are constants, what is the value of b ?

34

Trevor works as a sales associate at a retail store. He is normally paid 20% of the total retail value of the merchandise he sells, but he may also earn a bonus. When he earns a bonus, he is paid an additional 15% of his normal pay. During one pay period, Trevor sold $3500 in merchandise and earned a bonus. How much was he paid, in dollars, for this pay period? (Disregard the $ sign when gridding your answer.)

CONTINUE

35

$$c(x) = mx + 500$$

A company's total cost $c(x)$, in dollars, to produce x shirts is given by the function above, where m is a constant and $x > 0$. The total cost to produce 100 shirts is \$800. What is the total cost, in dollars, to produce 1000 shirts? (Disregard the \$ sign when gridding your answer.)

36

The total distance d, in meters, traveled by an object moving in a straight line can be modeled by a quadratic function that is defined in terms of t, where t is the time in seconds. At a time of 10.0 seconds, the total distance traveled by the object is 50.0 meters, and at a time of 20.0 seconds, the total distance traveled by the object is 200.0 meters. If the object was at a distance of 0 meters when $t = 0$, then what is the total distance traveled, in meters, by the object after 30.0 seconds?

CONTINUE

Questions 37 and 38 refer to the following information.

For a certain computer game, individuals receive an integer score that ranges from 2 through 10. The table below shows the frequency distribution of the scores of the 9 players in group A and the 11 players in group B.

	Score	2	3	4	5	6	7	8	9	10	Total
Score frequencies	Group A	1	1	2	1	3	0	0	1	0	9
	Group B	0	0	0	4	2	0	2	1	2	11

37

The median of the scores for group B is how much greater than the median of the scores for group A?

38

The mean of the scores for group A is 5, and the mean of the scores for group B is 7. What is the mean of the scores for the 20 players in groups A and B combined?

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section.

Answers

Reading

Question	Correct Answer	Your Answer	Difficulty	Subscores/Cross-Test Scores
1	D	✓	■■■	N/A
2	D	✓	■■□	N/A
3	A	✓	■■□	Words in Context
4	B	✓	■■□	N/A
5	D	✓	■□□	Words in Context
6	A	✓	■■□	N/A
7	B	✓	■□□	N/A
8	C	✓	■■□	Command of Evidence
9	C	✓	■■□	N/A
10	C	✓	■■□	N/A
11	A	✓	■□□	Analysis in History/ Social Studies Words in Context
12	C	✓	■■□	Analysis in History/ Social Studies
13	D	✓	■■□	Analysis in History/ Social Studies
14	D	✓	■■■	Analysis in History/ Social Studies
15	B	A	■□□	Analysis in History/ Social Studies
16	C	✓	■□□	Analysis in History/ Social Studies Words in Context
17	B	✓	■■□	Analysis in History/ Social Studies
18	D	✓	■■■	Analysis in History/ Social Studies Command of Evidence
19	B	✓	■■□	Analysis in History/ Social Studies
20	A	✓	■■□	Analysis in History/ Social Studies
21	A	✓	■■□	Analysis in History/ Social Studies Command of Evidence

22	B	✓	■■□	Analysis in Science
23	C	✓	■■□	Analysis in Science
24	D	✓	■■□	Analysis in Science Command of Evidence
25	A	✓	■■□	Analysis in Science
26	D	✓	■■■	Analysis in Science Command of Evidence
27	C	✓	■■□	Analysis in Science Words in Context
28	A	✓	■■□	Analysis in Science
29	D	✓	■■■	Analysis in Science
30	A	✓	■□□	Analysis in Science Words in Context
31	B	✓	■■■	Analysis in Science
32	D	✓	■■■	Analysis in History/ Social Studies
33	D	✓	■■■	Analysis in History/ Social Studies Command of Evidence
34	A	✓	■■■	Analysis in History/ Social Studies
35	D	✓	■□□	Analysis in History/ Social Studies Words in Context
36	A	✓	■■□	Analysis in History/ Social Studies Words in Context
37	C	✓	■■□	Analysis in History/ Social Studies
38	B	C	■■■	Analysis in History/ Social Studies
39	C	✓	■□□	Analysis in History/ Social Studies Command of Evidence
40	B	✓	■■■	Analysis in History/ Social Studies
41	D	✓	■■□	Analysis in History/ Social Studies

42	A	✓	■■□	Analysis in Science
43	B	✓	■□□	Analysis in Science Words in Context
44	B	✓	■■■	Analysis in Science
45	D	✓	■■□	Analysis in Science
46	B	C	■■□	Analysis in Science Command of Evidence
47	D	✓	■■■	Analysis in Science
48	A	✓	■■■	Analysis in Science Command of Evidence
49	B	✓	■■■	Analysis in Science
50	C	✓	■■□	Analysis in Science Words in Context
51	C	✓	■■□	Analysis in Science Command of Evidence
52	C	✓	■■□	Analysis in Science

Writing

Question	Correct Answer	Your Answer	Difficulty	Subscores/Cross-Test Scores
1	B	✓	■□□	Standard English Conventions
2	D	✓	■■□	Words in Context Expression of Ideas
3	C	✓	■■□	Standard English Conventions
4	A	✓	■■□	Command of Evidence Expression of Ideas
5	A	✓	■■□	Expression of Ideas
6	C	✓	■■□	Standard English Conventions
7	A	✓	■■□	Command of Evidence Expression of Ideas
8	D	✓	■■□	Standard English Conventions
9	B	✓	■■□	Words in Context Expression of Ideas
10	C	✓	■■□	Standard English Conventions
11	B	✓	■■□	Expression of Ideas

12	A	✓	■□□	Analysis in Science Words in Context Expression of Ideas
13	D	B	■■■	Analysis in Science Expression of Ideas
14	D	✓	■■□	Standard English Conventions
15	D	✓	■■□	Standard English Conventions
16	C	✓	■■□	Standard English Conventions
17	B	✓	■□□	Standard English Conventions
18	C	✓	■■□	Analysis in Science Expression of Ideas
19	D	B	■■■	Standard English Conventions
20	A	✓	■■□	Analysis in Science Words in Context Expression of Ideas
21	D	✓	■■□	Analysis in Science Command of Evidence Expression of Ideas
22	A	✓	■■□	Analysis in Science Command of Evidence Expression of Ideas
23	C	✓	■■■	Expression of Ideas
24	C	✓	■■□	Standard English Conventions
25	B	✓	■■□	Standard English Conventions
26	D	✓	■□□	Standard English Conventions
27	C	✓	■□□	Words in Context Expression of Ideas
28	B	✓	■■■	Standard English Conventions
29	D	✓	■■□	Words in Context Expression of Ideas
30	B	✓	■■□	Expression of Ideas
31	A	✓	■■□	Command of Evidence Expression of Ideas
32	B	✓	■■□	Command of Evidence Expression of Ideas
33	C	✓	■□□	Standard English Conventions

34	C	✓	■■□	Standard English Conventions
35	D	✓	■■■	Analysis in History/ Social Studies Expression of Ideas
36	A	✓	■□□	Standard English Conventions
37	B	✓	■■■	Standard English Conventions
38	D	✓	■■■	Analysis in History/ Social Studies Command of Evidence Expression of Ideas
39	B	✓	■■■	Analysis in History/ Social Studies Words in Context Expression of Ideas
40	D	✓	■■□	Standard English Conventions
41	B	✓	■■□	Analysis in History/ Social Studies Words in Context Expression of Ideas
42	C	✓	■■□	Standard English Conventions
43	A	✓	■■■	Analysis in History/ Social Studies Command of Evidence Expression of Ideas
44	C	✓	■■■	Analysis in History/ Social Studies Expression of Ideas

October 2019 US SAT Math: Calculator Section

Answer Key

Question	Correct Answer	Your Answer	Difficulty	Subscores/Cross-Test Scores
1	C	✓	■□□	Problem Solving and Data Analysis
2	C	✓	■□□	Problem Solving and Data Analysis
3	A	✓	■□□	Problem Solving and Data Analysis
4	C	✓	■□□	Passport to Advanced Math
5	B	✓	■□□	Passport to Advanced Math
6	B	✓	■□□	Problem Solving and Data Analysis
7	C	✓	■■□	Heart of Algebra
8	C	✓	■■□	Passport to Advanced Math
9	B	✓	■■□	Analysis in Science Heart of Algebra
10	A	✓	■■□	Analysis in History/ Social Studies Problem Solving and Data Analysis
11	C	✓	■■□	Heart of Algebra
12	A	✓	■■□	Problem Solving and Data Analysis
13	B	✓	■■□	Passport to Advanced Math
14	B	✓	■■□	Analysis in Science Problem Solving and Data Analysis

October 2019 US SAT Math: Calculator Section

15	D	✓	■■□	N/A
16	B	✓	■■□	N/A
17	C	✓	■□□	Analysis in History/ Social Studies Problem Solving and Data Analysis
18	A	✓	■■■	Analysis in History/ Social Studies Problem Solving and Data Analysis
19	A	✓	■■□	Problem Solving and Data Analysis
20	D	✓	■■■	Problem Solving and Data Analysis
21	D	✓	■■□	Analysis in Science Heart of Algebra
22	B	✓	■■■	Heart of Algebra
23	C	✓	■■■	Heart of Algebra
24	B	✓	■■■	Heart of Algebra
25	D	✓	■■□	Problem Solving and Data Analysis
26	C	✓	■■□	Heart of Algebra
27	D	✓	■■■	Analysis in History/ Social Studies Problem Solving and Data Analysis
28	C	A	■■■	N/A
29	D	✓	■■■	Analysis in Science Passport to Advanced Math
30	D	A	■■■	Heart of Algebra
31	60	✓	■□□	Analysis in History/ Social Studies Passport to Advanced Math
32	1500	✓	■■□	Analysis in Science Problem Solving and Data Analysis
33	2	✓	■■□	Heart of Algebra
34	805	✓	■■□	Analysis in History/ Social Studies Problem Solving and Data Analysis
35	3500	✓	■■□	Analysis in History/ Social Studies Heart of Algebra
36	450	✓	■■■	Analysis in Science Passport to Advanced Math
37	1	✓	■■■	Problem Solving and Data Analysis
38	6.1, 61/10	✓	■■■	Problem Solving and Data Analysis

October 2019 US SAT Math: Calculator Section

Math Curve (Please note that this includes the amount of questions missed in Math- No Calculator):

Number Missed	Score
-1	**790**
-2	**780**
-3	**760**
-4	**740**
-5	**730**
-6	**710**
-7	**700**

-8	**690**
-9	**680**

1	C	✓	■□□	Heart of Algebra
2	C	✓	■■□	Passport to Advanced Math
3	A	✓	■■□	Passport to Advanced Math
4	D	✓	■■□	Heart of Algebra
5	B	✓	■■□	N/A
6	A	✓	■■□	Passport to Advanced Math
7	A	✓	■■□	Passport to Advanced Math
8	B	✓	■■■	Heart of Algebra
9	C	✓	■■■	Heart of Algebra
10	A	✓	■■□	Analysis in Science Heart of Algebra
11	C	✓	■■□	N/A
12	C	✓	■■□	Passport to Advanced Math
13	A	✓	■■■	N/A
14	D	✓	■■■	Passport to Advanced Math
15	B	✓	■■■	Analysis in History/ Social Studies Passport to Advanced Math
16	3	✓	■■□	Analysis in Science Heart of Algebra
17	8/3, 2.67, 2.66	✓	■■■	Passport to Advanced Math
18	9	✓	■■■	Passport to Advanced Math
19	2.5, 5/2	✓	■■■	Heart of Algebra
20	.5, 1/2	✓	■■■	Heart of Algebra