Name _____ SAT Prep Homework

Date _____

Write your answers on this sheet. Only turn this sheet in. Do not turn in a copy of the test.

Math Module 1

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Math Module 2: Lower Difficulty

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Math

22 QUESTIONS

DIRECTIONS

The questions in this section address a number of important math skills.
Use of a calculator is permitted for all questions.

NOTES

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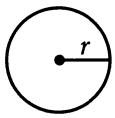
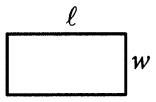
REFERENCE



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



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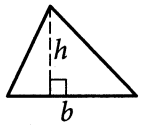

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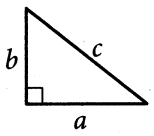
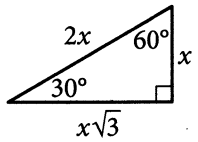
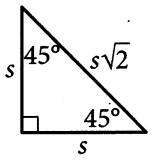
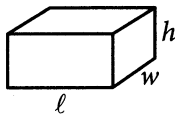


$c^2 = a^2 + b^2$

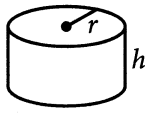




Special Right Triangles



$V = \ell wh$



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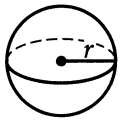

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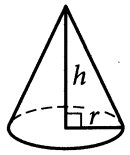
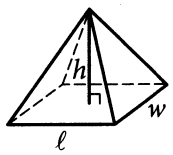


$V = \frac{1}{3}\pi r^2 h$



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

The number of degrees of arc in a circle is 360.

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The sum of the measures in degrees of the angles of a triangle is 180.

CONTINUE

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1

Which expression is equivalent to $(2x^2 + x - 9) + (x^2 + 6x + 1)$?

A) $2x^2 + 7x + 10$

B) $2x^2 + 6x - 8$

C) $3x^2 + 7x - 10$

D) $3x^2 + 7x - 8$

2

John paid a total of \$165 for a microscope by making a down payment of \$37 plus p monthly payments of \$16 each. Which of the following equations represents this situation?

A) $16p - 37 = 165$

B) $37p - 16 = 165$

C) $16p + 37 = 165$

D) $37p + 16 = 165$

3

$$7m = 2(n + p)$$

The given equation relates the positive numbers m, n, and p. Which equation correctly gives m in terms of n and p?

A) $m = \frac{2(n + p)}{7}$

B) $m = 2(n + p)$

C) $m = 2(n + p) - 7$

D) $m = 2 - n - p - 7$

4

The function g is defined by $g(x) = \sqrt{8x + 1}$. What is the value of $g(3)$?

A) $\frac{5}{8}$

B) $\frac{25}{8}$

C) 5

D) 25

5

The table gives the distribution of votes for a new school mascot and grade level for 80 students.

Mascot	Grade level			
	Sixth	Seventh	Eighth	Total
Badger	4	9	9	22
Lion	9	2	9	20
Longhorn	4	6	4	14
Tiger	6	9	9	24
Total	23	26	31	80

If one of these students is selected at random, what is the probability of selecting a student whose vote for new mascot was for a lion?

A) $\frac{1}{9}$

B) $\frac{1}{5}$

C) $\frac{1}{4}$

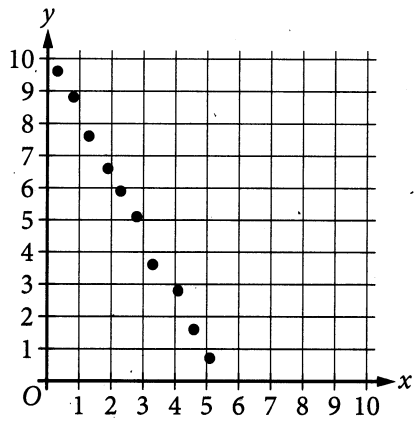
D) $\frac{2}{3}$

6

A student council group is selling school posters for a fundraiser. They use the function $p(x) = 5x - 220$ to determine their profit $p(x)$, in dollars, for selling x school posters. In order to earn a profit of \$900, how many school posters must they sell?

CONTINUE

7



Which of the following equations is the most appropriate linear model for the data shown in the scatterplot?

A) $y = -1.9x - 10.1$

B) $y = -1.9x + 10.1$

C) $y = 1.9x - 10.1$

D) $y = 1.9x + 10.1$

8

$$3x + 6 = 4y$$

$$3x + 4 = 2y$$

The solution to the given system of equations is (x, y). What is the value of y?

9

Data value	Frequency
6	3
7	3
8	8
9	8
10	9
11	11
12	9
13	0
14	6

The frequency table summarizes the 57 data values in a data set. What is the maximum data value in the data set?

10

Circle K has a radius of 4 millimeters (mm). Circle L has an area of 100π mm^2. What is the total area, in mm^2, of circles K and L?

A) 14π

B) 28π

C) 56π

D) 116π

11

If $9(4 - 3x) + 2 = 8(4 - 3x) + 18$, what is the value of $4 - 3x$?

A) -16

B) -4

C) 4

D) 16

CONTINUE

12

Triangle FGH is similar to triangle JKL, where angle F corresponds to angle J and angles G and K are right angles. If $\sin(F) = \frac{308}{317}$, what is the value of $\sin(J)$?

A) $\frac{75}{317}$

B) $\frac{308}{317}$

C) $\frac{317}{308}$

D) $\frac{317}{75}$

13

A wire with a length of 106 inches is cut into two parts. One part has a length of x inches, and the other part has a length of y inches. The value of x is 6 more than 4 times the value of y. What is the value of x?

A) 25

B) 28

C) 56

D) 86

14

A certain township consists of a 5-hectare industrial park and a 24-hectare neighborhood. The total number of trees in the township is 4,529. The equation $5x + 24y = 4{,}529$ represents this situation. Which of the following is the best interpretation of x in this context?

A) The average number of trees per hectare in the industrial park

B) The average number of trees per hectare in the neighborhood

C) The total number of trees in the industrial park

D) The total number of trees in the neighborhood

15

Which expression is equivalent to $a^{\frac{11}{12}}$, where $a > 0$?

A) $\sqrt[12]{a^{132}}$

B) $\sqrt[144]{a^{132}}$

C) $\sqrt[121]{a^{132}}$

D) $\sqrt[11]{a^{132}}$

16

The function f is defined by $f(x) = (x - 6)(x - 2)(x + 6)$. In the xy-plane, the graph of $y = g(x)$ is the result of translating the graph of $y = f(x)$ up 4 units. What is the value of $g(0)$?

17

$$y = 4x + 1$$
$$4y = 15x - 8$$

The solution to the given system of equations is (x, y). What is the value of $x - y$?

CONTINUE

18

$$f(t) = 8{,}000(0.65)^t$$

The given function f models the number of coupons a company sent to their customers at the end of each year, where t represents the number of years since the end of 1998, and $0 \le t \le 5$. If $y = f(t)$ is graphed in the ty-plane, which of the following is the best interpretation of the y-intercept of the graph in this context?

A) The minimum estimated number of coupons the company sent to their customers during the 5 years was 1,428.

B) The minimum estimated number of coupons the company sent to their customers during the 5 years was 8,000.

C) The estimated number of coupons the company sent to their customers at the end of 1998 was 1,428.

D) The estimated number of coupons the company sent to their customers at the end of 1998 was 8,000.

19

A landscaper uses a hose that puts $88x$ ounces of water in a bucket in $5y$ minutes. Which expression represents the number of ounces of water the hose puts in the bucket in $9y$ minutes at this rate?

A) $\frac{9x}{440}$

B) $\frac{440x}{9}$

C) $\frac{5x}{792}$

D) $\frac{792x}{5}$

20

$$\sqrt{(x-2)^2} = \sqrt{3x+34}$$

What is the smallest solution to the given equation?

21

Triangle XYZ is similar to triangle RST such that X, Y, and Z correspond to R, S, and T, respectively. The measure of $\angle Z$ is 20° and $2XY = RS$. What is the measure of $\angle T$?

A) 2°

B) 10°

C) 20°

D) 40°

22

$$f(x) = 9(4)^x$$

The function f is defined by the given equation. If $g(x) = f(x + 2)$, which of the following equations defines the function g?

A) $g(x) = 18(4)^x$

B) $g(x) = 144(4)^x$

C) $g(x) = 18(8)^x$

D) $g(x) = 81(16)^x$

STOP

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

Math

22 QUESTIONS

DIRECTIONS

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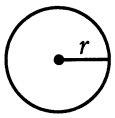

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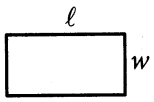

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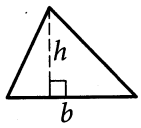

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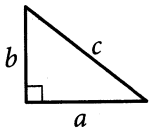

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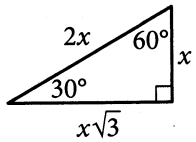

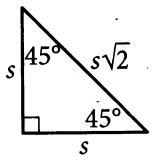

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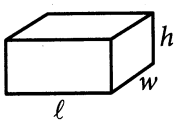

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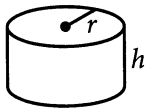

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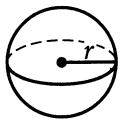

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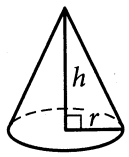
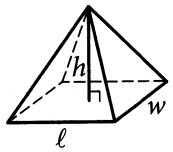


$V = \frac{1}{3}\pi r^2 h$



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The number of radians of arc in a circle is 2π.

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CONTINUE

1

$k + 12 = 336$

What is the solution to the given equation?

A) 28

B) 324

C) 348

D) 4,032

2

What length, in centimeters, is equivalent to a length of 51 meters? (1 meter = 100 centimeters)

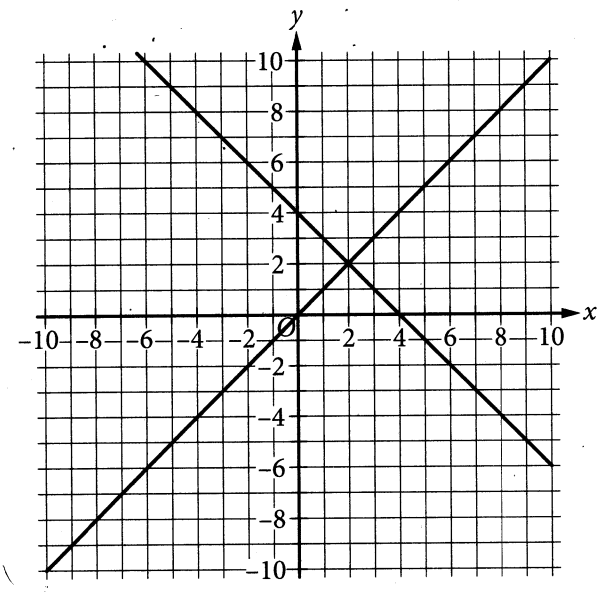
A) 0.051

B) 0.51

C) 5,100

D) 51,000

3



The graph of a system of two linear equations is shown. What is the solution (x, y) to the system?

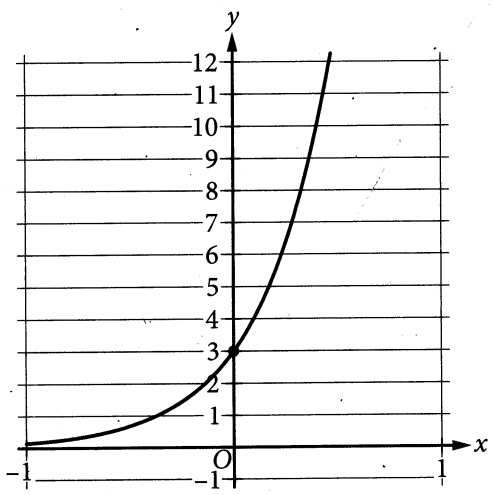
A) (0, 4)

B) (2, 2)

C) (4, 0)

D) (4, 4)

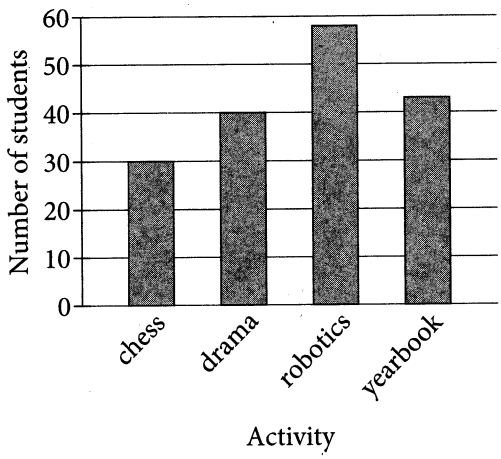
4



The graph of the exponential function f is shown, where $y = f(x)$. The y-intercept of the graph is $(0, y)$. What is the value of y?

5

The bar graph shows the distribution of the number of students in each of four extracurricular activities at a high school.



How many more students are in drama than in chess?

A) 10

B) 30

C) 40

D) 70

CONTINUE

6

Which expression is equivalent to $\frac{8x(x-7)-3(x-7)}{2x-14}$, where $x > 7$?

A) $\frac{x-7}{5}$

B) $\frac{8x-3}{2}$

C) $\frac{8x^2-3x-14}{2x-14}$

D) $\frac{8x^2-3x-77}{2x-14}$

7

Out of 300 seeds that were planted, 80% sprouted. How many of these seeds sprouted?

8

Ty set a goal to walk at least 24 kilometers every day to prepare for a multiday hike. On a certain day, Ty plans to walk at an average speed of 4 kilometers per hour. What is the minimum number of hours Ty must walk on that day to fulfill the daily goal?

A) 4

B) 6

C) 20

D) 24

9

$y = x + 4$

Which table gives three values of x and their corresponding values of y for the given equation?

A)

x	y
0	4
1	5
2	6

B)

x	y
0	6
1	5
2	4

C)

x	y
0	2
1	1
2	0

D)

x	y
0	0
1	1
2	2

CONTINUE

10

The function g is defined by $g(x) = 6x$. For what value of x is $g(x) = 54$?

11

Sean rents a tent at a cost of \$11 per day plus a onetime insurance fee of \$10. Which equation represents the total cost c, in dollars, to rent the tent with insurance for d days?

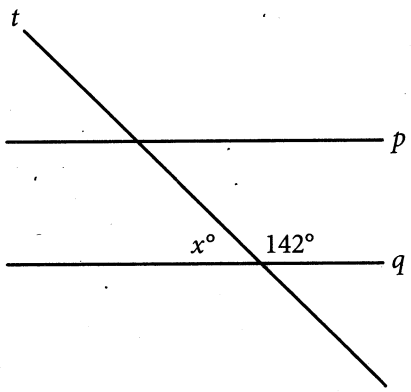
A) $c = 11(d + 10)$

B) $c = 10(d + 11)$

C) $c = 11d + 10$

D) $c = 10d + 11$

12



Note: Figure not drawn to scale.

In the figure, line p is parallel to line q, and line t intersects both lines. What is the value of $x + 142$?

A) 52

B) 90

C) 142

D) 180

13

What is the area, in square centimeters, of a rectangle with a length of 34 centimeters (cm) and a width of 29 cm?

14

$$h(x) = x + b$$

For the linear function h, b is a constant and $h(0) = 45$. What is the value of b?

15

What is the equation of the line that passes through the point (0, 5) and is parallel to the graph of $y = 7x + 4$ in the xy-plane?

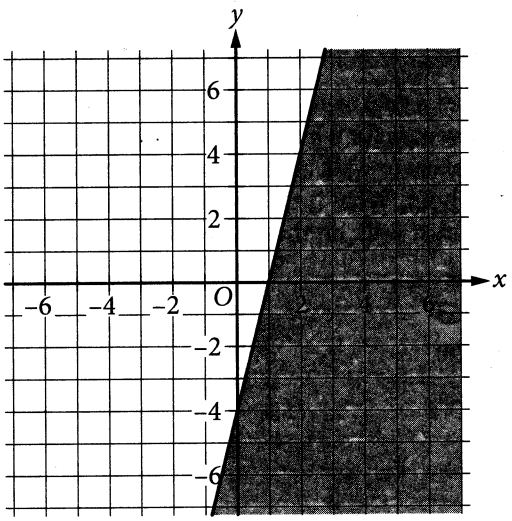
A) $y = 5x$

B) $y = 7x + 5$

C) $y = 7x$

D) $y = 5x + 7$

16



The shaded region shown represents the solutions to an inequality. Which ordered pair (x, y) is a solution to this inequality?

A) $(-5, -6)$

B) $(-2, 5)$

C) $(1, 4)$

D) $(6, -2)$

CONTINUE

17

The number of bacteria in a liquid medium doubles every day. There are 44,000 bacteria in the liquid medium at the start of an observation. Which of the following represents the number of bacteria, y, in the liquid medium t days after the start of the observation?

A) $y = \frac{1}{2}(44{,}000)^t$

B) $y = 2(44{,}000)^t$

C) $y = 44{,}000\left(\frac{1}{2}\right)^t$

D) $y = 44{,}000(2)^t$

18

The product of a positive number x and the number that is 8 more than x is 180. What is the value of x?

A) 5

B) 10

C) 18

D) 36

19

$$(5x + 4)(2x - 5) = 0$$

Which of the following is a solution to the given equation?

A) $-\frac{5}{2}$

B) $-\frac{5}{4}$

C) $-\frac{4}{5}$

D) $-\frac{2}{5}$

20

Keenan made 32 cups of vegetable broth. Keenan then filled x small jars and y large jars with all the vegetable broth he made. The equation $3x + 5y = 32$ represents this situation. Which is the best interpretation of $5y$ in this context?

A) The number of large jars Keenan filled

B) The number of small jars Keenan filled

C) The total number of cups of vegetable broth in the large jars

D) The total number of cups of vegetable broth in the small jars

21

The area A, in square centimeters, of a rectangular cutting board can be represented by the expression $w(w + 9)$, where w is the width, in centimeters, of the cutting board. Which expression represents the length, in centimeters, of the cutting board?

A) $w(w + 9)$

B) w

C) 9

D) $(w + 9)$

22

The measure of angle R is $\frac{2\pi}{3}$ radians. The measure of angle T is $\frac{5\pi}{12}$ radians greater than the measure of angle R. What is the measure of angle T, in degrees?

A) 75

B) 120

C) 195

D) 390

STOP

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