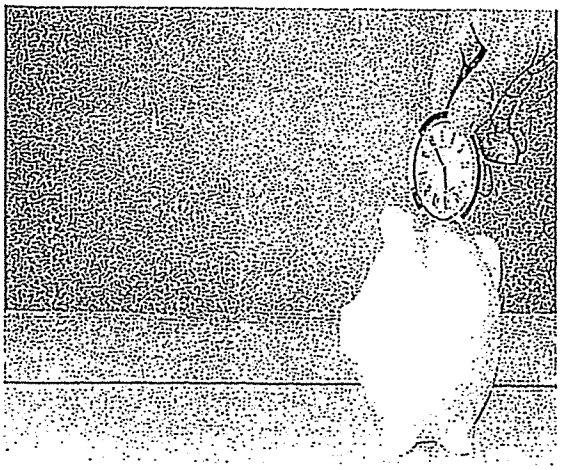
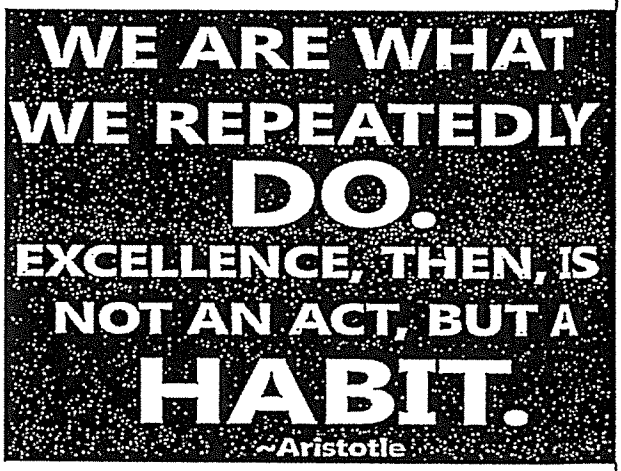
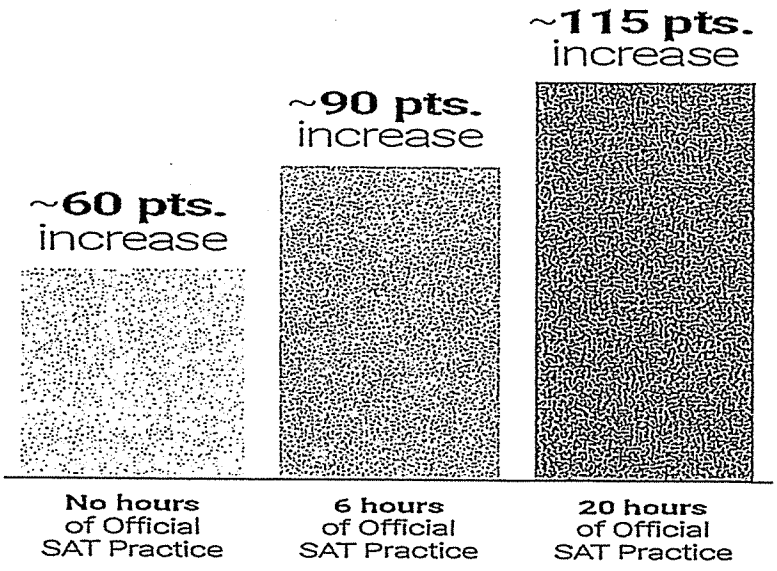
SAT Practice #2 Name_____

Why Practice SAT Math with these packets and on Khan Academy?







*College Board Research Data 2017

**Please BE sure to show work and circle or grid answers!

SAT Practice 2

1. A photocopy machine is initially loaded with 5,000 sheets of paper. The machine starts a large job and copies at a constant rate. After 20 minutes, it has used 30% of the paper. Which of the following equations models the number of sheets of paper, p, remaining in the machine m minutes after the machine started printing?

A) $p = 5{,}000 - 20m$

B) $p = 5{,}000 - 75m$

C) $p = 5{,}000(0.3)^{\frac{m}{20}}$

D) $p = 5{,}000(0.7)^{\frac{m}{20}}$

2. $$x + 1 = \frac{2}{x+1}$$

In the equation above, which of the following is a possible value of $x + 1$?

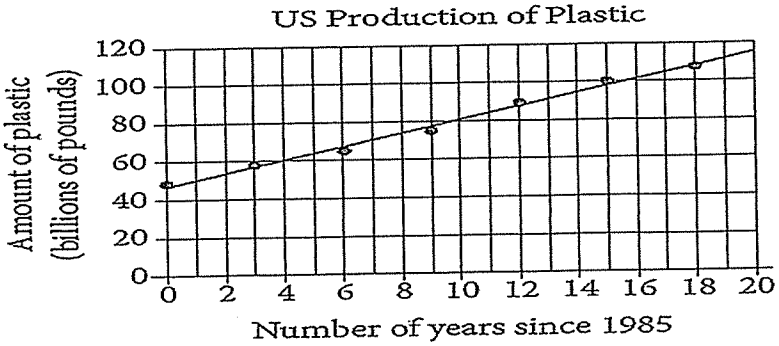
A) $1 - \sqrt{2}$

B) $\sqrt{2}$

C) 2

D) 4

3. Between 1985 and 2003, data were collected every three years on the amount of plastic produced annually in the United States, in billions of pounds. The graph below shows the data and a line of best fit. The equation of the line of best fit is $y = 3.39x + 46.89$, where x is the number of years since 1985 and y is the amount of plastic produced annually, in billions of pounds.



Which of the following is closest to the percent increase in the billions of pounds of plastic produced in the United States from 2000 to 2003?

A) 10%

B) 44%

C) 77%

D) 110%

4. Which of the following is a value of x for which the expression $\frac{-3}{x^2+3x-10}$ is undefined?

A) -3

B) -2

C) 0

D) 2

5. In the xy-plane, the point (p, r) lies on the line with equation $y = x + b$, where b is a constant. The point with coordinates $(2p, 5r)$ lies on the line with equation $y = 2x + b$. If $p \neq 0$, what is the value of $\frac{r}{p}$?

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

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

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

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

6.

Year	Subscriptions sold
2012	5,600
2013	5,880

The manager of an online news service received the report above on the number of subscriptions sold by the service. The manager estimated that the percent increase from 2012 to 2013 would be double the percent increase from 2013 to 2014. How many subscriptions did the manager expect would be sold in 2014?

A) 6,020

B) 6,027

C) 6,440

D) 6,468

7. Lani spent 15% of her 8-hour workday in meetings. How many minutes of her workday did she spend in meetings?

A) 1.2

B) 15

C) 48

D) 72

8 If $f(x) = \dfrac{x^2 - 6x + 3}{x - 1}$, what is $f(-1)$?

A) -5

B) -2

C) 2

D) 5

9. $$\frac{a - b}{a} = c$$

In the equation above, if a is negative and b is positive, which of the following must be true?

A) $c > 1$

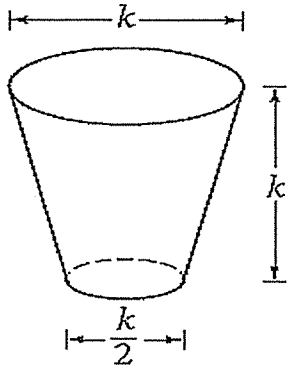
B) $c = 1$

C) $c = -1$

D) $c < -1$

10.

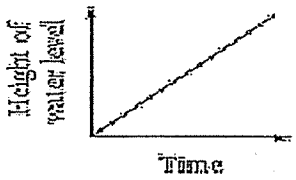
$$\text{Volume} = \frac{7\pi k^3}{48}$$



The glass pictured above can hold a maximum volume of 473 cubic centimeters, which is approximately 16 fluid ounces.

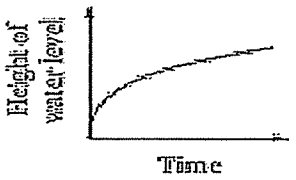
Water pours into the glass slowly and at a constant rate. Which of the following graphs best illustrates the height of the water level in the glass as it fills?

A)

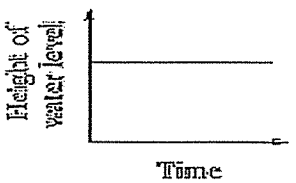


B)

C)



D)



11.

Where Do People Get Most of Their Medical Information?

Source	Percent of those surveyed
Doctor	63%
Internet	13%
Magazines/brochures	9%
Pharmacy	6%
Television	2%
Other/none of the above	7%

The table above shows a summary of 1,200 responses to a survey question. Based on the table, how many of those surveyed get most of their medical information from either a doctor or the Internet?

A) 865

B) 887

C) 912

D) 926

12.

A software company is selling a new game in a standard edition and a collector's edition. The box for the standard edition has a volume of 20 cubic inches, and the box for the collector's edition has a volume of 30 cubic inches. The company receives an order for 75 copies of the game, and the total volume of the order to be shipped is 1,870 cubic inches. Which of the following systems of equations can be used to determine the number of standard edition games, s, and collector's edition games, c, that were ordered?

A) $75 - s = c$
$20s + 30c = 1{,}870$

B) $75 - s = c$
$30s + 20c = 1{,}870$

C) $s - c = 75$
$25(s + c) = 1{,}870$

D) $s - c = 75$
$30s + 20c = 1{,}870$

13.

Last week Raul worked 11 more hours than Angelica. If they worked a combined total of 59 hours, how many hours did Angelica work last week?

A) 24

B) 35

C) 40

D) 48

14.

The monthly membership fee for an online television and movie service is $9.80. The cost of viewing television shows online is included in the membership fee, but there is an additional fee of $1.50 to rent each movie online. For one month, Jill's membership and movie rental fees were $12.80. How many movies did Jill rent online that month?

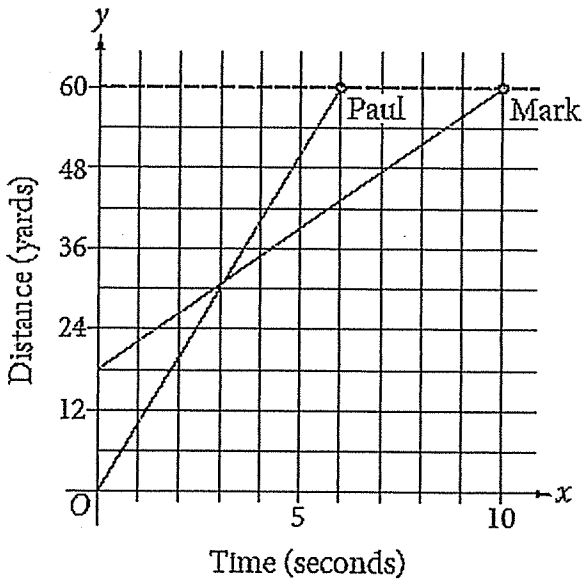
A) 1

B) 2

C) 3

D) 4

15.



The graph above shows the positions of Paul and Mark during a race. Paul and Mark each ran at a constant rate, and Mark was given a head start to shorten the distance he needed to run. Paul finished the race in 6 seconds, and Mark finished the race in 10 seconds. According to the graph, Mark was given a head start of how many yards?

A) 3

B) 12

C) 18

D) 24

16. Nick surveyed a random sample of the freshman class of his high school to determine whether the Fall Festival should be held in October or November. Of the 90 students surveyed, 25.6% preferred October. Based on this information, about how many students in the entire 225-person class would be expected to prefer having the Fall Festival in October?

A) 50

B) 60

C) 75

D) 80

17. A website-hosting service charges businesses a onetime setup fee of $350 plus d dollars for each month. If a business owner paid $1,010 for the first 12 months, including the setup fee, what is the value of d ?

A) 25

B) 35

C) 45

D) 55

18. $$\sqrt{x-a} = x-4$$

If $a = 2$, what is the solution set of the equation above?

A) $\{3, 6\}$

B) $\{2\}$

C) $\{3\}$

D) $\{6\}$

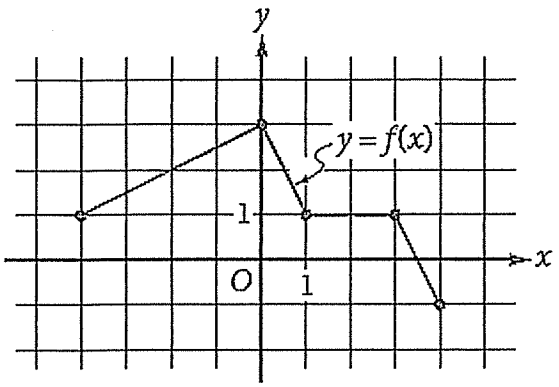
19. In the xy-plane, the parabola with equation $y = (x-11)^2$ intersects the line with equation $y = 25$ at two points, A and B. What is the length of $\overline{AB}$?

A) 10

B) 12

C) 14

20.



The complete graph of the function f is shown in the xy-plane above. Which of the following are equal to 1 ?

I. $f(-4)$

II. $f\left(\frac{3}{2}\right)$

III. $f(3)$

A) III only

B) I and III only

C) II and III only

D) I, II, and III

21. $$y = a(x-2)(x+4)$$

In the quadratic equation above, a is a nonzero constant. The graph of the equation in the xy-plane is a parabola with vertex (c, d). Which of the following is equal to d ?

A) $-9a$

B) $-8a$

C) $-5a$

22. The atomic weight of an unknown element, in atomic mass units (amu), is approximately 20% less than that of calcium. The atomic weight of calcium is 40 amu. Which of the following best approximates the atomic weight, in amu, of the unknown element?

A) 8

B) 20

C) 32

D) 48

23.

n	1	2	3	4
$f(n)$	−2	1	4	7

The table above shows some values of the linear function f. Which of the following defines f ?

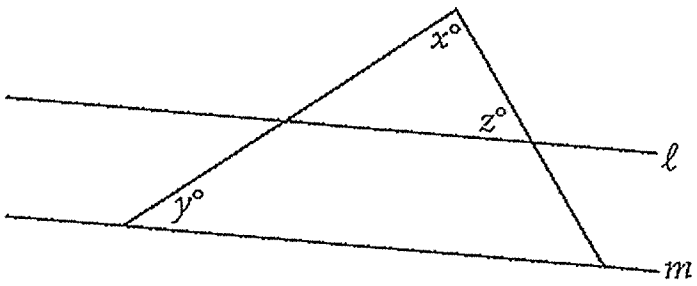
A) $f(n) = n - 3$

B) $f(n) = 2n - 4$

C) $f(n) = 3n - 5$

D) $f(n) = 4n - 6$

24.



Note: Figure not drawn to scale.

In the figure above, lines ℓ and m are parallel, $y = 20$, and $z = 60$. What is the value of x ?

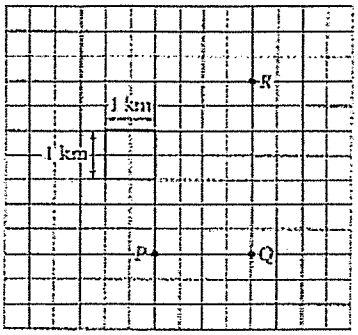
A) 120

B) 100

C) 90

D) 80

25.



A student walks x kilometers (km) along a straight path from point P to point Q. Then the student walks y km along a straight path from point Q to point R. What is the total distance, $x+y$, in km, that the student walks?

A. 2.0
B. 3.5
C. 5.5
D. 8.0

26.

In one semester, Doug and Laura spent a combined 250 hours in the tutoring lab. If Doug spent 40 more hours in the lab than Laura did, how many hours did Laura spend in the lab?

27.

$$q = \frac{1}{2}nv^2$$

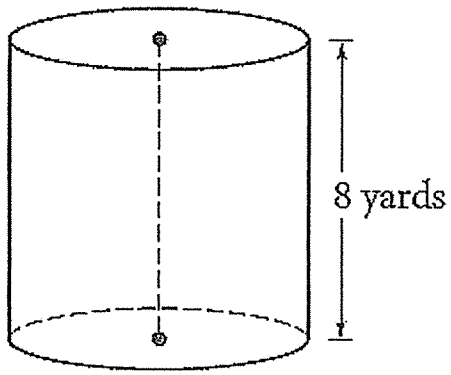
The dynamic pressure q generated by a fluid moving with velocity v can be found using the formula above, where n is the constant density of the fluid. An aeronautical engineer uses the formula to find the dynamic pressure of a fluid moving with velocity v and the same fluid moving with velocity $1.5v$. What is the ratio of the dynamic pressure of the faster fluid to the dynamic pressure of the slower fluid?

28.

The stock price of one share in a certain company is worth \$360 today. A stock analyst believes that the stock will lose 28 percent of its value each week for the next three weeks. The analyst uses the equation $V = 360(r)^t$ to model the value, V, of the stock after t weeks.

What value should the analyst use for r ?

29.



A dairy farmer uses a storage silo that is in the shape of the right circular cylinder above. If the volume of the silo is 72π cubic yards, what is the diameter of the base of the cylinder, in yards?

30.

In the xy-plane, the graph of $y = 3x^2 - 14x$ intersects the graph of $y = x$ at the points $(0, 0)$ and (a, a). What is the value of a ?