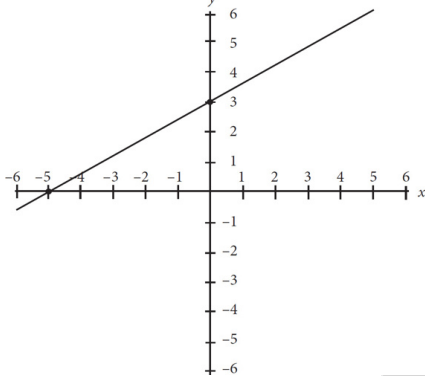


SATPREP
Assignment – No Calculator

- If two times a number is equal to that number minus 4, what is the number?
 A. -7
 B. -6
 C. -4
 D. -3
- The number of soil samples, s , that Sonal needs for an experiment must be greater than 6 but less than or equal to 13. Which of the following represents an acceptable number of soil samples for Sonal's experiment?
 A. $6 < s < 13$
 B. $6 \leq s < 13$
 C. $6 < s \leq 13$
 D. $6 \leq s \leq 13$



- In the figure above, the graph of $y = f(x)$ is shown. Which of the following could be the equation of $f(x)$?
 A. $f(x) = -\frac{3}{5}x + 3$
 B. $f(x) = -\frac{3}{5}x - 3$
 C. $f(x) = \frac{3}{5}x - 3$
 D. $f(x) = \frac{3}{5}x + 3$

- If $x + y = 0$, which of the following must be equivalent to $x - y$?
 A. $-2y$
 B. $\frac{x}{y}$
 C. x
 D. x^2
- Which of the following is equivalent to $2x^2 - 6x - 8$?
 A. $2(x - 4)(x + 1)$
 B. $3(x + 4)(x - 1)$
 C. $2(x - 3)(x + 2)$
 D. $3(x - 4)(x - 2)$
- Ryan and Allison build a ramp to help their elderly cat, Simms, walk up to their bed. They need the ramp to make a 35° angle with their bedroom floor. How long must the ramp be to reach the top of their bed that is exactly three feet off the ground?
 A. $\frac{\sin 35^\circ}{3}$
 B. $\frac{\sin 55^\circ}{3}$
 C. $\frac{3}{\sin 55^\circ}$
 D. $\frac{3}{\sin 35^\circ}$

- If $3a + 2b = 24$ and $4a + 5b = 53$, what is the value of $a + b$?
 A. 2
 B. 7
 C. 9
 D. 11

8. Given the equation $y = 3x + 4$, what is the function of the coefficient of 3 ?
- A. It moves the graph of $y = 3x + 4$ three units higher than the graph of $y = x + 4$.
 - B. It moves the graph of $y = 3x + 4$ three units lower than the graph of $y = x + 4$.
 - C. It makes the graph of $y = 3x + 4$ wider than the graph of $y = x + 4$.
 - D. It makes the graph of $y = 3x + 4$ narrower than the graph of $y = x + 4$.
9. Steven needs to buy t theme park tickets for himself and his family. Each ticket costs \$80, and the number of tickets he needs to buy can be modeled by the expression $t - 4t - 90 = 6$ when $t > 0$. What is the total cost of the theme park tickets that Steven purchased?
- A. \$640
 - B. \$800
 - C. \$960
 - D. \$1,120
10. $2c + 3d = 17$
 $6c + 5d = 39$
In the system of linear equations above, what is the value of $4c - 4d$?
- A. -4
 - B. 1
 - C. 4
 - D. 13
11. If $x + 2xy + y = 64$ and $y - x = 12$, which of the following could be the value of x ?
- A. -10
 - B. -4
 - C. 2
 - D. 10
12. Samantha offers two different packages of yoga classes at her yoga studio. She offers two hot yoga sessions and three zero gravity yoga sessions at a total cost of \$400. She also offers four hot yoga sessions and two zero gravity sessions at a price of \$440. Samantha wants to offer a larger package for long-time clients in which the cost must exceed \$800. If Samantha does not wish to include more than 13 sessions for the long-time client package, will she be able to create this package for her clients?
- A. No, because the closest package that she can offer consists of three hot yoga and three zero gravity yoga sessions.
 - B. No, because the closest package that she can offer consists of four hot yoga and four zero gravity yoga sessions.
 - C. Yes, because she can offer five hot yoga and five zero gravity yoga sessions.
 - D. Yes, because she can

offer six hot yoga and six zero gravity yoga sessions.

13. Cuthbert is conducting a chemistry experiment that calls for a number of chemicals to be mixed in various quantities. The one amount of which he is unsure is grams of potassium, p . If Cuthbert is certain that $(3p^2 + 14p + 24) - 2(p^2 + 7p + 20) = 0$, what is one possible value of $3p + 6$, the exact number of grams of potassium that Cuthbert would like to use for this experiment?

- A. 20
- B. 18
- C. 12
- D. 10

14. What is the value of $(2 + 8i)(1 - 4i) - (3 - 2i)(6 + 4i)$?

(Note: $i = \sqrt{-1}$)

- A. 8
- B. 26
- C. 34
- D. 50

15. If $2\sqrt{x} = x - 3$, which of the following is the solution set for x ?

- A. $\{-1, 9\}$
- B. $\{1, -9\}$
- C. $\{9\}$
- D. $\{1, 9\}$

16. $\frac{p}{3} + \frac{q}{2} = 1$

$p - 3q = 1$

Based on the system of equations above, what is the value of p ?

17. $y = x$

$(y - 2) - 4 = -x$

The system of equations above intersects at two points. What is the sum of the coordinates of the point of intersection in quadrant I?

18. $1 < (c - 1)^2 < 36$

What is the greatest integer solution to the inequality above?

19. $2y - x \leq 4$

$-2x + y \geq -4$

If s is the sum of the x - and y -coordinates of any point in the solution to the system of inequalities above as graphed in the xy -plane, what is the greatest possible value of s ?

20. Squares $ABCD$ and $WXYZ$ define two parallel planes such that $AW = BX = CY = DZ = 5$. Additionally, $AB = WX = 4$. Point Q lies between the two parallel planes such that it is equidistant from points A , B , C , and D and also equidistant from points W , X , Y , and Z . Lines AQY , BQZ , CQW , and DQX are drawn to create two pyramids. What is the total volume of the two pyramids?