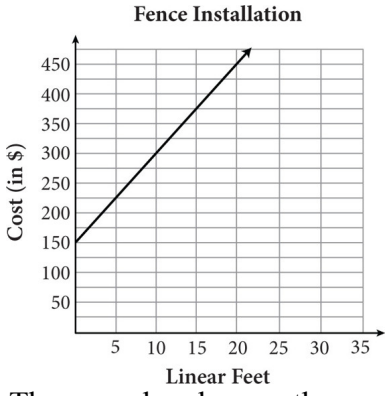
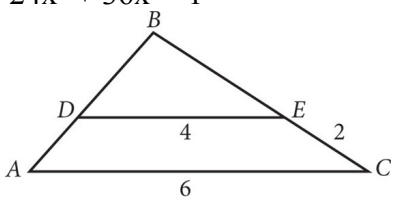
SATPREP
Assignment – No Calculator



1. The graph shows the cost of installing a vinyl privacy fence. The company charges a flat installation fee plus a cost per linear foot of fencing. Based on the graph, how much does one linear foot of this particular vinyl fence cost?
A. $5
B. $15
C. $75
D. $150

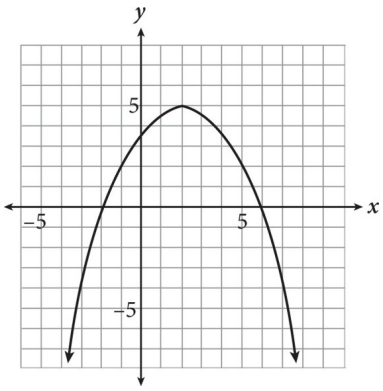
2. $\dfrac{24x^4 + 36x^3 - 12x^2}{12x^2}$

Which of the following expressions is equivalent to the expression shown above?
A. $2x^2 + 3x$
B. $24x^4 + 36x^3$
C. $2x^2 + 3x - 1$
D. $24x^4 + 36x^3 - 1$



3. Note: Figure not drawn to scale.

In the figure shown, $\Delta ABC \sim \Delta DBE$. What is the length of $\overline{BE}$?
A. 3.5
B. 3.75
C. 4
D. 4.5



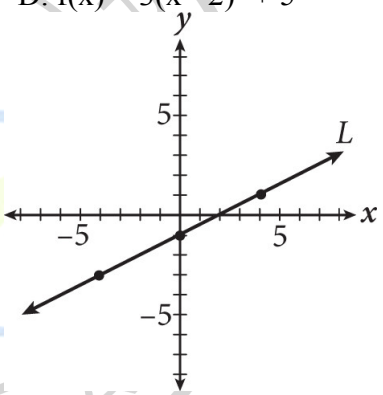
4. Which of the following represents the function shown?

A. $f(x) = -\frac{1}{3}(x-2)^2 + 5$

B. $f(x) = -\frac{1}{3}(x+2)^2 + 5$

C. $f(x) = \frac{1}{3}(x+2)^2 + 5$

D. $f(x) = 3(x - 2)^2 + 5$



5. If line L shown here is reflected over the x-axis, what is the slope of the new line?
A. -2
B. $-\frac{1}{2}$
C. $\frac{1}{2}$
D. 2

6. If $p = 4x^3 + x - 2$, $q = x^2 - 1$, and $r = 3x - 5$, then what is $2p - (q + r)$?
A. $7x^3 - x + 2$
B. $8x^3 - x^2 - x + 2$
C. $8x^3 - x^2 - x - 10$
D. $8x^3 - x^2 + 5x - 8$

7. Which of the following are the roots of the equation $2x^2 + 4x - 3 = 0$?

A. $\frac{-2 \pm \sqrt{10}}{2}$

B. $-2 \pm \sqrt{5}$

C. $-1 \pm \sqrt{10}$

D. $-1 \pm 2\sqrt{10}$

8. If g(x) = 3x - 5 and $h(x) = \frac{7x+10}{4}$ at what point does the graph of g(x) intersect the graph of h(x)?

A. (-2, -11)

B. (2, 1)

C. (3, 4)

D. (6, 13)

9. If $x = k^{-\frac{1}{3}}$, where x > 0 and k > 0, which of the following equations gives k in terms of x?

A. $k = \frac{1}{x^3}$

B. $k = \frac{1}{\sqrt[3]{x}}$

C. $k = -\sqrt[3]{x}$

D. $k = -x^3$

10. 4x - (10 - 2x) = c (3x - 5)

If the equation shown has infinitely many solutions, and c is a constant, what is the value of c?

A. -2

B. $-\frac{2}{3}$

C. $\frac{2}{3}$

D. 2

11. If $0 < 1 - \frac{a}{3} \leq \frac{1}{2}$, which of the following is not a possible value of a?

A. 1.5

B. 2

C. 2.5

D. 3

12. $\begin{cases} y - \frac{2}{k}x \leq 0 \\ \frac{1}{k}x - \frac{1}{2}y \leq -1 \end{cases}$

If the system of inequalities shown has no solution, what is the value of k?

A. 1

B. 2

C. There is no value of k that results in no solution.

D. There are infinitely many values of k that result in no solution.

13. $\frac{4x}{x-7} + \frac{2x}{2x-14} = \frac{70}{2(x-7)}$

What value(s) of x satisfy the equation above?

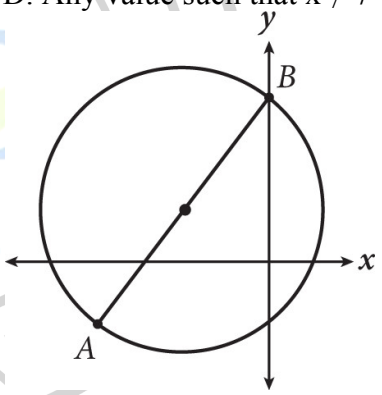
A. 0

B. 7

C. No solution

D. Any value such that $x \neq 7$

14.



The circle shown is given by the equation $x^2 + y^2 + 6x - 4y = 12$. What is the shortest distance from A to B?

A. 5

B. 10

C. $4\sqrt{3}$

D. 24

15. If g is a function defined over the set of all real numbers and $g(x - 1) = 3x^2 + 5x - 7$, then which of the following defines g(x)?

A. $g(x) = 3x^2 - x - 9$

B. $g(x) = 3x^2 + 5x + 1$

C. $g(x) = 3x^2 + 11x + 1$

D. $g(x) = 3x^2 + 11x - 6$

16. Dan orders a soccer jersey online. If the jersey costs 40 euros and one euro is worth 1.2 dollars, how many dollars did Dan pay for the jersey?

17. An ice cream cart vendor sells 50 popsicles on an average fall day. During the summer, the ice cream cart vendor sells 7 less than twice as many popsicles per day than he does on the average fall day. How many popsicles does the ice cream cart vendor sell in 6 summer days?

18. $1.3g + 1.7h = 5$
$3h = 20 + 13g$
Based on the system of equations above, what is the value of h ?

19.

	Candidate A	Candidate B	Undecided	Total
Democrat	24	56	70	150
Republican	117	70	50	237
Independent	15	18	80	113
Total	156	144	200	500

The table above illustrates the results of a political poll. Five hundred voters were first asked whether they were registered as Democrat, Republican, or Independent. The voters were then asked whether they planned to vote for Candidate A, for Candidate B, or were Undecided. What percent of the registered Democrats plan to vote for Candidate A ? (Disregard the percent symbol when gridding your answer.)

20. $x \geq 0$
$3y - 2x \geq -12$
$2x + 5y \leq 20$
What is the area of the triangle formed in the xy-plane by the system of inequalities above?