

Name: _____

Date: _____

1. What is the sum of the solutions for the quadratic equation below?

$$3x^2 + x - 2 = 0$$

- A. $-1\frac{2}{3}$ B. $-\frac{1}{3}$ C. $\frac{1}{3}$ D. $1\frac{2}{3}$

2. Study the quadratic equation below.

$$2x^2 + 3x - 20 = 0$$

Which of the following shows two solutions to the equation?

- A. 4 and $-\frac{5}{2}$ B. 2 and -5

- C. -4 and $\frac{5}{2}$ D. 5 and -2

3. Which is the factored form of $3a^2 - 24ab + 48b^2$?

- A. $(3a - 8b)(a - 6b)$ B. $(3a - 16b)(a - 3b)$

- C. $3(a - 4b)(a - 4b)$ D. $3(a - 8b)(a - 8b)$

4. Which is a factor of $x^2 - 11x + 24$?

- A. $x + 3$ B. $x - 3$ C. $x + 4$ D. $x - 4$

5. Which of the following shows $9t^2 + 12t + 4$ factored completely?

- A. $(3t + 2)^2$ B. $(3t + 4)(3t + 1)$

- C. $(9t + 4)(t + 1)$ D. $9t^2 + 12 + 4t$

6. What is the complete factorization of $32 - 8z^2$?

- A. $-8(2 + z)(2 - z)$ B. $8(2 + z)(2 - z)$

- C. $-8(2 + z)^2$ D. $8(2 - z)^2$

7. If x^2 is added to x , the sum is 42. Which of the following could be the value of x ?

- A. -7 B. -6 C. 14 D. 42

8. **Eric's T-shirt Shop**

Eric owns a T-shirt shop. Eric has been selling 50 T-shirts each day at a price of \$20. He finds that for each \$1 reduction in price, he can sell 5 more each day. At what price (in dollars) should he sell the T-shirts in order to maximize his daily income from their sales?

9. Jamie wants to solve this equation:

$$x - 6 = \sqrt{3x}$$

Which statement is true?

- A. The solutions of Jamie's equation are the solutions of $x^2 - 3x - 6 = 0$.

- B. The solutions of Jamie's equation are the solutions of $x^2 - 15x + 36 = 0$.

- C. The solution of Jamie's equation is one of the solutions of $x^2 - 3x - 6 = 0$.

- D. The solution of Jamie's equation is one of the solutions of $x^2 - 15x + 36 = 0$.

10. Which is one of the solutions to the equation

$$2x^2 - x - 4 = 0?$$

- A. $\frac{1}{4} - \sqrt{33}$ B. $-\frac{1}{4} + \sqrt{33}$

- C. $\frac{1 + \sqrt{33}}{4}$ D. $\frac{-1 - \sqrt{33}}{4}$

11. The braking distance of Samir's car can be described by the equation:

$$y = \frac{x^2 + 5x}{200}$$

where x is the car's speed in kilometers per hour and y is the braking distance in meters.

How fast is the car traveling when the braking distance is 75 meters?

- A. 30 kilometers per hour
 B. 50 kilometers per hour
 C. 55 kilometers per hour
 D. 120 kilometers per hour
12. What are the *approximate* solutions of the equation $x^2 + 4x = -2$?

- A. $\{-4.45, 0.45\}$ B. $\{-3.41, 0.45\}$
 C. $\{-3.41, -0.45\}$ D. $\{-3.41, -0.45\}$

13. Which quadratic equation has roots $2 + \sqrt{5}$ and $2 - \sqrt{5}$?

- A. $x^2 + 4x + 1 = 0$ B. $x^2 - 4x - 1 = 0$
 C. $x^2 - 4x + 1 = 0$ D. $x^2 + 4x - 1 = 0$

14. Which table represents y as a function of x ?

A.

x	1	2	3	2	1
y	1	2	3	4	5

B.

x	4	5	4	3	2
y	-6	-5	-4	-3	-2

C.

x	8	7	6	5	4
y	-1	2	-1	2	-1

D.

x	3	4	3	2	3
y	0	1	2	1	3

15. Which of the following sentences is true about the graphs of $y = 3(x - 5)^2 + 1$ and $y = 3(x + 5)^2 + 1$?

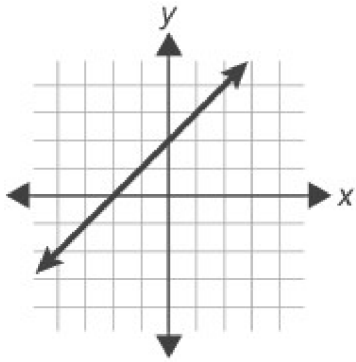
- A. Their vertices are maximums.
 B. The graphs have the same shape with different vertices.
 C. The graphs have different shapes with different vertices.
 D. One graph has a vertex that is a maximum, while the other graph has a vertex that is a minimum.

16. What is the vertex of the quadratic function $y = -(x - 3)^2 + 4$?

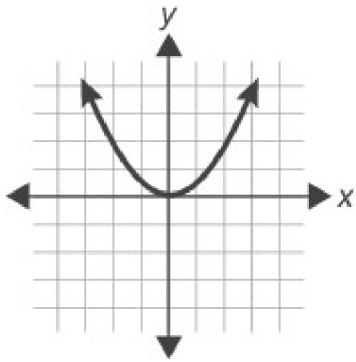
- A. (5, 0) B. (0, -5) C. (3, 4) D. (-3, 4)

17. Which graph represents exponential growth?

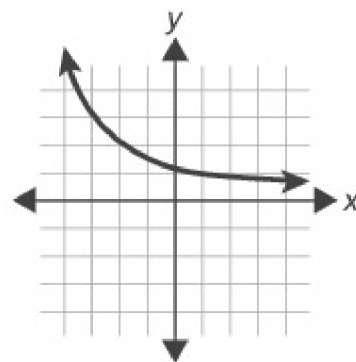
A.



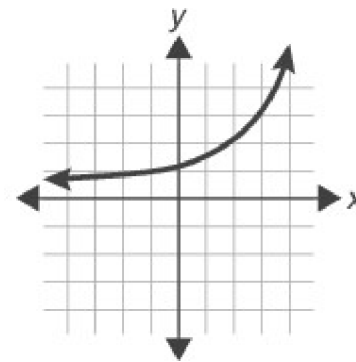
B.



C.

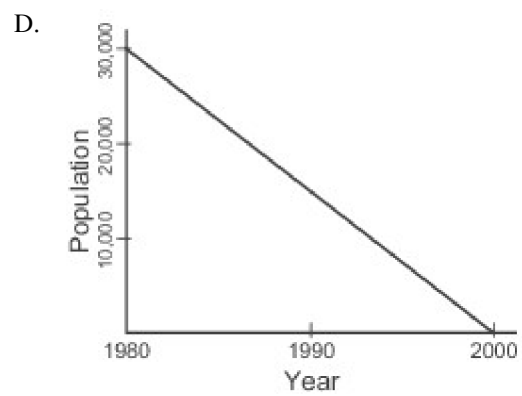
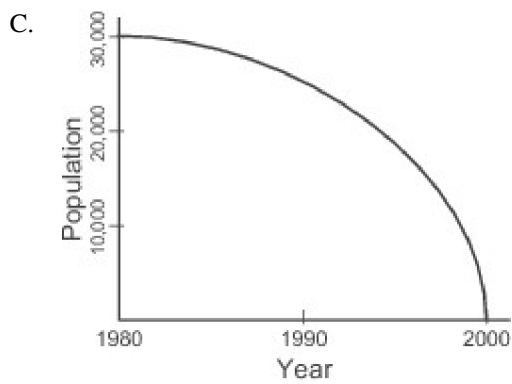
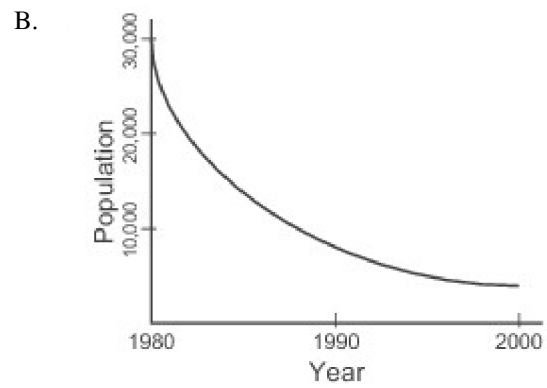
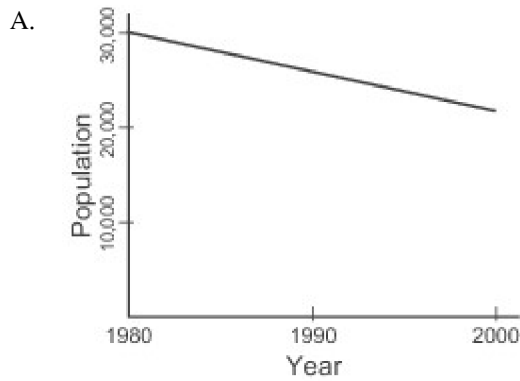


D.



18. The population of the town of Tipton was approximately 30,000 in 1980. The population has been decreasing at a rate of 10% per year.

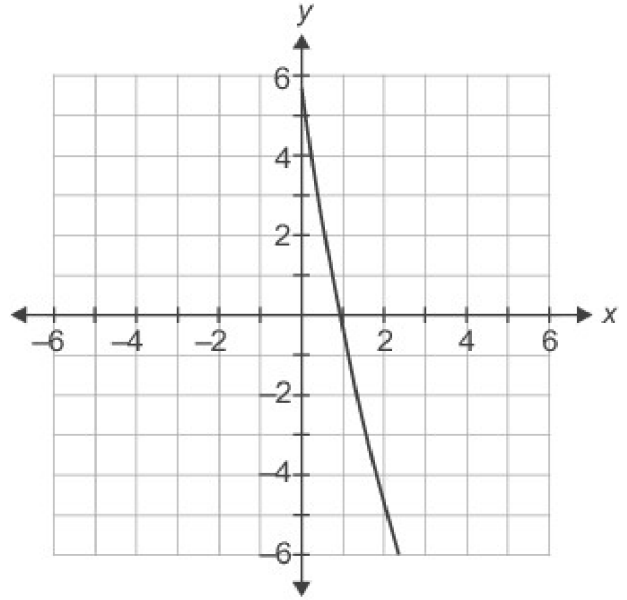
Which graph best models the population of the town of Tipton from 1980 to 2000?



19. When $f(x) = x^2 - 4x + 7$ is written in the form $f(x) = (x - 2)^2 + 3$, which properties of the graph are revealed?

- A. Axis of symmetry, maximum
- B. Axis of symmetry, minimum
- C. Zeros, maximum
- D. Zeros, minimum

20. Fiona enters a function into her graphing calculator. The screen of her calculator is shown.



Which function could Fiona have graphed?

- A. $y = -5(x + 1)$
 - B. $y = (x - 1)(x - 5)$
 - C. $y = -(x - 1)(x + 5)$
 - D. $y = 0.5(x - 1)(x - 10)$
21. Which function has zeros at 2 and -5?
- A. $y = x^2 + 3x + 10$
 - B. $y = x^2 - 3x + 10$
 - C. $y = x^2 + 3x - 10$
 - D. $y = x^2 - 3x - 10$

1.
Answer: B
2.
Answer: C
3.
Answer: C
4.
Answer: B
5.
Answer: A
6.
Answer: B
7.
Answer: A
8.
Answer:
9.
Answer: D
10.
Answer: C
11.
Answer: D
12.
Answer: D
13.
Answer:
14.
Answer: C
15.
Answer: B
16.
Answer: C
17.
Answer: D
18.
Answer: B
19.
Answer: B
20.
Answer: D
21.
Answer: C