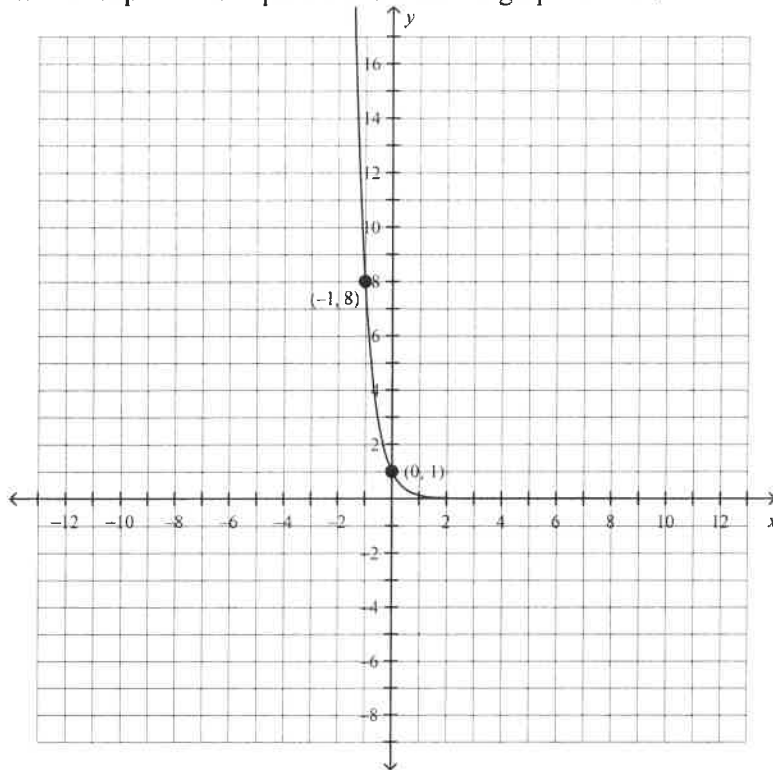


Pre-Calculus 12 Chapter 7 Review

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- _____ 1. Which set of properties does the function $y = 2^x$ have?
- A no x -intercept, no y -intercept C no x -intercept, y -intercept is 1
B x -intercept is 1, no y -intercept D x -intercept is 0, y -intercept is 0
- _____ 2. Which set of properties is correct for the function $y = \left(\frac{1}{9}\right)^x$?
- A domain $\{x|x \in \mathbb{R}\}$, range $\{y|y > 0, y \in \mathbb{R}\}$ C domain $\{x|x \in \mathbb{R}\}$, range $\{y|y \leq 0, y \in \mathbb{R}\}$
B domain $\{x|x \in \mathbb{R}\}$, range $\{y|y \geq 0, y \in \mathbb{R}\}$ D domain $\{x|x \in \mathbb{R}\}$, range $\{y|y < 0, y \in \mathbb{R}\}$
- _____ 3. Which exponential equation matches the graph shown?

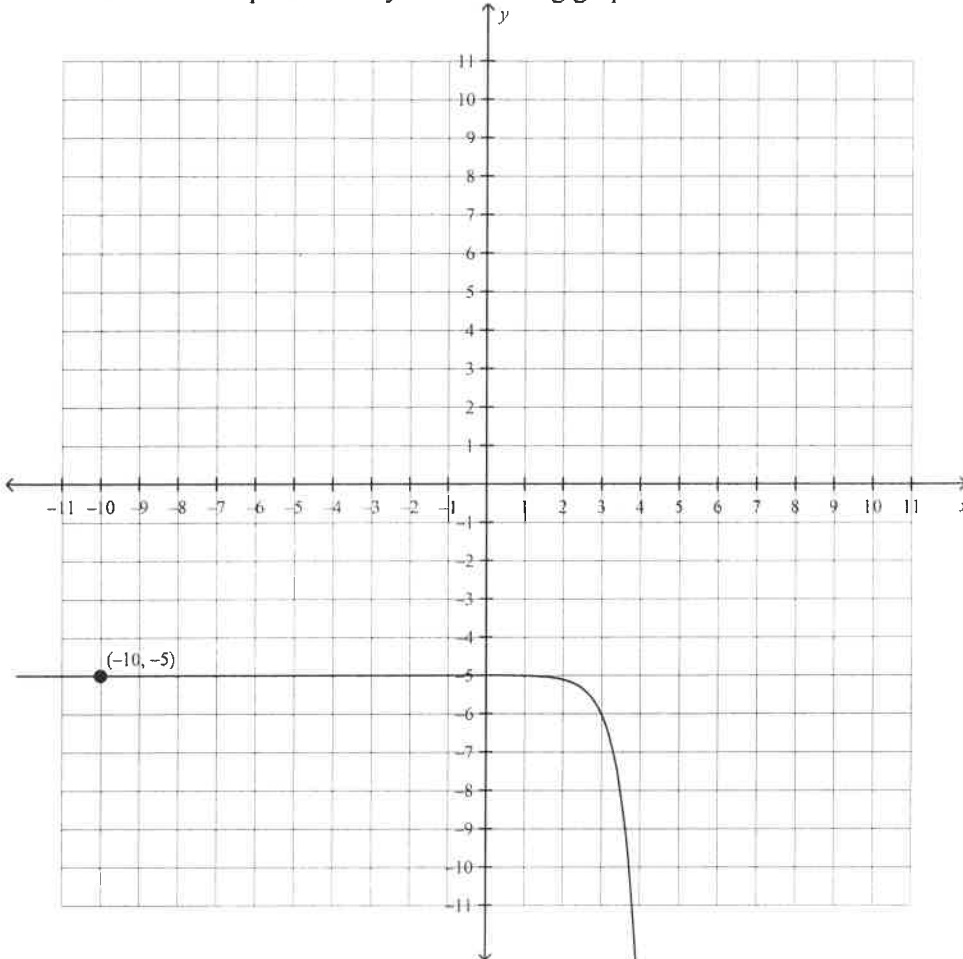


- A $y = \left(\frac{1}{8}\right)^x$ C $y = -\left(\frac{1}{8}\right)^x$
B $y = 8^x$ D $y = -8^x$

11. Which of the following transformations maps the function $y = 8^x$ onto the function $y = 8^{x+5} + 7$?

- A a horizontal shift of 5 units to the left and a vertical shift of 7 units up
- B a horizontal shift of 5 units to the right and a vertical shift of 7 units down
- C a horizontal shift of 5 units to the right and a vertical shift of 7 units up
- D a horizontal shift of 5 units to the left and a vertical shift of 7 units down

12. Which function is represented by the following graph?



- A $y = -9(9)^{(x+4)} + 5$
- B $y = 9(9)^{-(x+4)} + 5$
- C $y = -9(9)^{(x-4)} - 5$
- D $y = 9(9)^{-(x-4)} - 5$

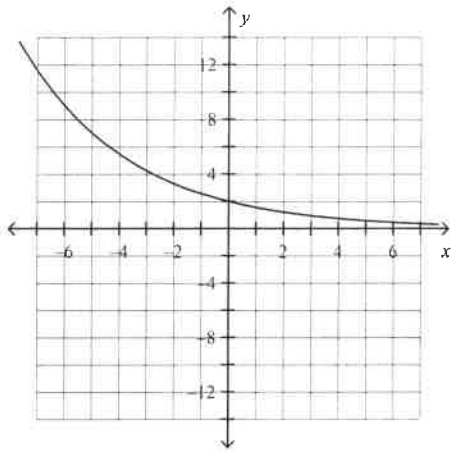
13. What is the exponential equation for the function that results from the transformations listed being applied to the base function $y = 9^x$?

- a reflection in the y -axis
- a vertical stretch by a factor of 6
- a horizontal stretch by a factor of 7

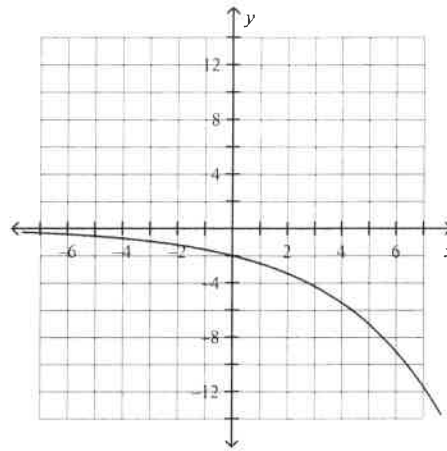
- A $y = -7(9)^{\frac{x}{6}}$
- B $y = 6(9)^{\frac{-x}{7}}$
- C $y = 7(9)^{\frac{x}{6}}$
- D $y = -6(9)^{\frac{x}{7}}$

14. Which graph represents the function $y = 2\left(\frac{7}{9}\right)^x$?

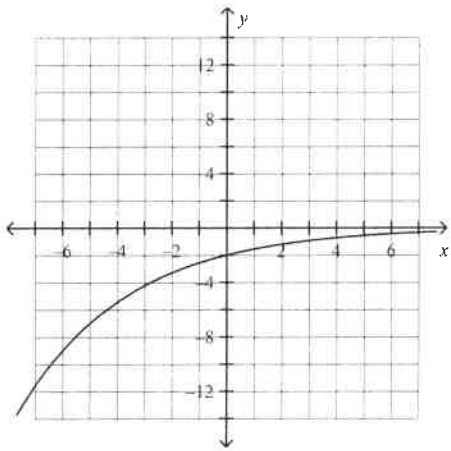
A



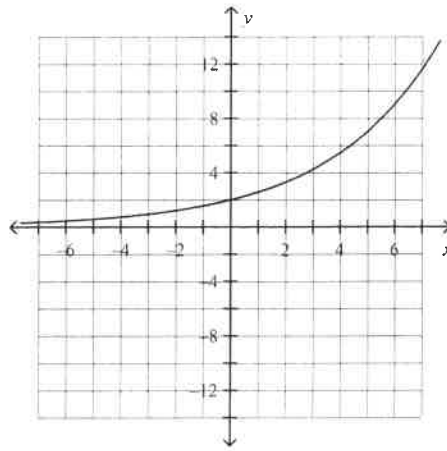
C



B



D



15. The half-life of a radioactive element can be modelled by $M = M_0\left(\frac{1}{32}\right)^{\frac{t}{45}}$, where M_0 is the initial mass of the element; t is the elapsed time, in hours; and M is the mass that remains after time t . The half-life of the element is

- A 11 h
- B 10 h

- C 18 h
- D 9 h

Name: _____

ID: A

Short Answer

1. Solve $36^{3x} = 216^{(x+7)}$

2. Solve $9^{n-1} = \left(\frac{1}{3}\right)^{4n-1}$

3. Solve $3^x = 9^{x^2 - \frac{1}{2}}$

4. Solve the equation $\sqrt[3]{256^2} \times 16^x = 64^{x-3}$

Name: _____

ID: A

8. Jeff buys a new vehicle for \$35 000. It is known that the vehicle will depreciate by 20% of its current value every year. How long will it take the vehicle to depreciate to \$3000? (You must show your work by writing and solving an equation).

9. A chemist has a 20-mg sample of polonium-218. He needs approximately 81.5% of it for an experiment. Given that the half-life of polonium-218 is approximately 3.1 min, how many seconds will it take for the sample to decay to the desired mass? (You must show your work by writing and solving an equation).

10. What is the amount if \$1 250 grows continuously at 2.75% per annum for 10 years?