

MODULE 4

LESSON 2

QUIZ

1. Question. Which of the following is an exponential function?

A.  $f(x) = x^2 - 9$

B.  $f(x) = \left(\frac{1}{2}\right)^x - 1$

C.  $f(x) = x^2$

D.  $f(x) = 2x$

Go to answer 1

2. Question. Which of the following is an exponential function?

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

B.  $f(x) = 2x - 1$

C.  $f(x) = 2x^3 - 2$

D.  $f(x) = \left(\frac{1}{3}\right)^{-x}$

Go to answer 2

3. Question. Which of the following is an exponential function?

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

B.  $f(x) = 5\left(\frac{1}{4}\right)^x + 1$

C.  $f(x) = 2x^{-2}$

D.  $f(x) = 5x$

Go to answer 3

4. Question.

A.  $f(x) = x^3 + 5$

B.  $f(x) = 7$

C.  $f(x) = 2x^{-3} + 2$

D.  $f(x) = \left(\frac{2}{3}\right)^{-x}$

Go to answer 4

5. Question. Determine if the graph of the exponential function  $y = 3^x$  is increasing, decreasing, neither, or both.

A. increasing

B. decreasing

C. neither

D. both

Go to answer 5

6. Question. Determine if the graph of the exponential function  $y = \left(\frac{2}{5}\right)^x$

A. increasing

B. decreasing

C. neither

D. both

Go to answer 6

7. Question. Determine if the graph of the exponential function  $y = 2^{-x}$  is increasing, decreasing, neither, or both.

A. increasing

B. decreasing

C. neither

D. both

Go to answer 7

8. Question. Find the value of  $b$ , if any, that would cause the graph of  $y = b^x$  to pass through the points  $(0, 1)$  and  $(-1, 50)$ .

A.  $b = 50$

B.  $b = \frac{1}{25}$

C.  $b = \frac{1}{50}$

D. No value of  $b$

Go to answer 8

9. Question. Find the value of  $b$ , if any, that would cause the graph of  $y = b^x$  to pass through the point  $(0, -1)$ .

A.  $b = -1$

B.  $b = 0$

C.  $b = 1$

D. No value of  $b$

Go to answer 9

10. Question. Determine if the graph of  $y = e^x$  could pass through the points  $(1, e)$  and  $(2, e^2)$ .

A. Yes

B. No

Go to answer 10

11. Question. Evaluate:

A.

B.

C.

D.

Go to answer 11

12. Question.

A.

B.

C.

D.

Go to answer 12

13. Question.

A.

B.

C.

D.

Go to answer 13

14. Question.

A.

B.

C.

D.

Go to answer 14

15. Question.

A.

B.

C.

D.

Go to answer 15

16. Question.

A.

B.

C.

D.

Go to answer 16

17. Question.

A.

B.

C.

D.

Go to answer 17

18. Question.

A.

B.

C.

D.

Go to answer 18

19. Question.

A.

B.

C.

D.

Go to answer 19

20. Question.

A.

B.

C.

D.

Go to answer 20

## ANSWERS

1. Answer to Question 1 is "B".

An exponential function with base  $b$  is defined by the equation  $y = f(x) = b^x$  where  $b > 0$  and  $b \neq 1$ .

Go back 1

2. Answer to Question 2 is "D".

Go back 2

3. Answer to Question 3 is "B".

Go back 3

4. Answer to Question 4 is "D".

Go back 4

5. Answer to Question 5 is "A".

The graph of  $y = 3^x$  passes through the points  $(0, 1)$ ,  $(1, 3)$  and others. It is one-to-one, and has the x-axis as a vertical asymptote. Since  $b = 3$  and  $b > 1$ , then it is increasing.

Go back 5

6. Answer to Question 6 is "B".

If  $b > 1$ , then  $y = b^x$  defines an increasing function. If  $0 < b < 1$ , then  $y = b^x$  defines a decreasing function.

Go back 6

7. Answer to Question 7 is "B".

Excellent! The graph of  $y = 2^{-x}$  or  $y = (\frac{1}{2})^x$  passes through the points  $(0, 1)$ ,  $(1, \frac{1}{2})$  and others. It is one-to-one and has the x-axis as a vertical asymptote. Since  $b = \frac{1}{2}$  and  $0 < b < 1$ , then  $y = 2^{-x}$  or  $y = (\frac{1}{2})^x$  is decreasing.

Go back 7

8. Answer to Question 8 is "C".

Very Good! If  $x = -1$  and  $y = 50$ , then  $50 = b^{-1}$  or  $50 = \frac{1}{b}$  or  $50b = 1$  and  $b = \frac{1}{50}$ .

Go back 8

9. Answer to Question 9 is "D".

If  $x = 0$  and  $y = -1$ , then  $-1 = b^0$ . However,  $-1 \neq 1$  so there is no value of  $b$

Go back 9

10. Answer to Question 10 is "A".

$x = 2$  and  $y = e^2$ , then  $y = e^x$  becomes  $e^2 = e^2$ . If  $x = 1$  and  $y = e$ , then  $y = e^x$  becomes  $e = e^1$  which is true.

Go back 10

11. Answer to Question 11 is "".

Go back 11

12. Answer to Question 12 is "".

Go back 12

13. Answer to Question 13 is "B".



Go back 13

14. Answer to Question 14 is "".

Go back 14

15. Answer to Question 15 is "".

Go back 15

16. Answer to Question 16 is "C".

Go back 16

17. Answer to Question 17 is "".

Go back 17

18. Answer to Question 18 is "".

Go back 18

19. Answer to Question 19 is "".

Go back 19

20. Answer to Question 20 is "".

Go back 20