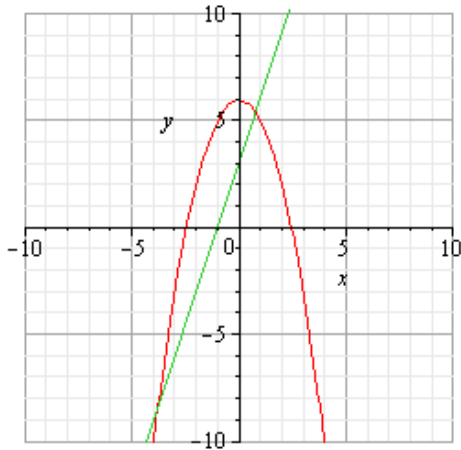


1. If $f(x) = x^3 - 3$ and $g(x) = 4x - 1$, then $f(g(1))$ has what value?

- a. 3
- b. 0
- c. 24
- d. cannot be determined from the given information

For questions 2 and 3 consider the graph of $y = f(x) = 6 - x^2$ and $y = g(x) = 3x + 3$ where $f(x)$ is a parabola and $g(x)$ is a straight line shown below.



2. From the graph it is determined that $f(g(0))$ has a value closest to:

- a. 3
- b. -3
- c. 4
- d. 0

3. From the graph it is determined that $g(f(2))$ has a value closest to:

- a. 9
- b. 2
- c. 0
- d. cannot be found from the graphs

4. If $y = f(x) = 3x + 75$, then the inverse of this function is:

- a. $y = -3x + 75$
- b. $y = \frac{x}{3} - 25$
- c. $y = x - \frac{75}{3}$
- d. This function doesn't have an inverse function

5. The simplification of $\sqrt[3]{27z^6}$ is:

- a. $27z^2$
- b. $3z^6$
- c. $9z$
- d. $3z^2$

6. The numerical value of $8^{\frac{-2}{3}}$ that is 8 raised to the negative 2/3's power is:

- a. -8^2
- b. $1/4$
- c. $-1/4$
- d. a number larger than 8

7. The distance between points A(1, -5) and B(3, 4) has a value closest to:

- a. $\sqrt{85}$
- b. $\sqrt{11}$
- c. $\sqrt{17}$
- d. 7

8. If $\sqrt{2x-3} = 5$, a value of x which makes this statement true is:

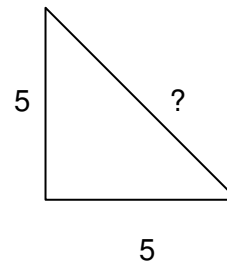
- a. 11
- b. 25
- c. 0
- d. $3/2$

9. If $V = \frac{4}{3}\pi R^3$ then R is equal to:

- a. $\frac{3V}{4\pi}$
- b. $\sqrt[3]{\frac{3V}{4\pi}}$
- c. $\frac{4\pi}{3}$
- d. $\sqrt[3]{V}$

10. Consider the triangle shown where the shorter sides are each of length 5. The length of the hypotenuse, the longest side of the triangle has a value of:

- a. 50
- b. $\sqrt{25}$
- c. 25
- d. $\sqrt{50}$



11. If the two points A(5, 3) and B(-2, -4) form a straight line, the distance between the two points is:

- a. $\sqrt{(5-3)^2 + (-2-(-5))^2}$
- b. $\sqrt{(5+3)^2 + (-2+(-5))^2}$
- c. $\sqrt{5^2 + 3^2 + (-2)^2 + (-5)^2}$
- d. $\sqrt{98}$

12. If $a = \log_b c$ can be expressed as $b^a = c$, then $\log_8 64$ has what value?

- a. 2
- b. 8
- c. $8 \cdot 8$
- d. $64/3$

For problems 13, 14, and 15, consider that $\log 2 = 0.3$, $\log 3 = 0.5$ and $\log 13 = 1.1$.

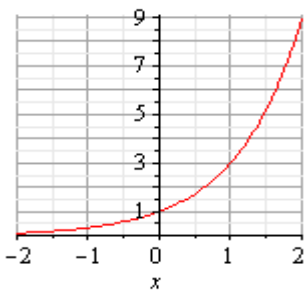
13. Using the above definitions and if $6 = 2 \cdot 3$, then $\log 6$ has what value?

14. Using the above definitions then $\log 1.5$ has what value?

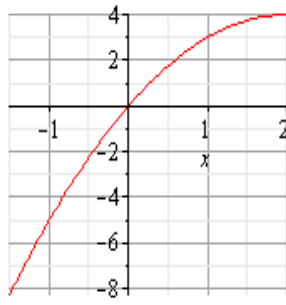
15. Using the above definitions, then $\log 26$ has what value?

16. The graph of $y = \log_3 x$ is which of the functions graphed below?

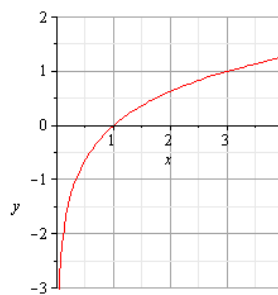
a.



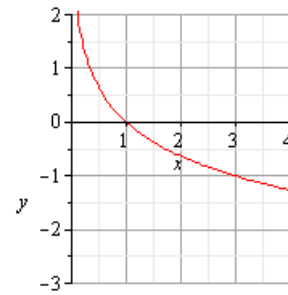
b.



c.



d.



17. True or False: $\log 10 = \log 5 + \log 2$.

18. True or False: $\log\left(\frac{m}{n}\right) = \log m - \log n$.

19. True or False: $\log 2^3 = 3 \log 2$.

20. True or False: the logarithm of any number, based on the equation $y = \log_2 x$ when x is between 0 and 1, that is $0 < x < 1$, has a negative value.