PRECALC AB PERIOD: _____ NAME:_____

# Pre-Calc AB: Function Review

1. Find $f$ where $g(x) = \sqrt[3]{x^3+4}$ and $f \circ g(x) = \frac{1}{\sqrt[3]{x^3+4}}$.

   (a) $f(x) = \sqrt[3]{x}$
   (b) $f(x) = \frac{1}{x}$
   (c) $f(x) = \frac{1}{x^3}$
   (d) $f(x) = x^3 - 4$

2. Find the inverse function for $y = 4x - 3$.

   (a) $y = \frac{x-3}{4}$
   (b) $y = \frac{x+3}{4}$
   (c) $y = -4x + 3$
   (d) $y = 3y - 4$

3. Given that $f(x) = \frac{x-7}{x}$ and $g(x) = x^2 - 8$, find $g \circ f(-7)$.

   (a) $-\frac{31}{4}$
   (b) $-4$
   (c) $-6$
   (d) $\frac{34}{41}$

4. Use symmetry tests to verify any of the three symmetries of the graph of $y = 3x^3$.

   (a) No symmetries
   (b) $y$-axis only
   (c) origin only
   (d) $x$-axis, $y$-axis, and origin

5. The graph of a circle $x^2 + y^2 = 6$ is translated -6 units horizontally and -2 units vertically. What is the general form of the equation of the translated graph?

   (a) $x^2 + y^2 - 12x - 4y + 34 = 0$
   (b) $x^2 + y^2 + 12x + 4y + 34 = 0$
   (c) $x^2 + y^2 - 6x - 2y + 12 = 0$
   (d) $x^2 + y^2 + 6x + 2y - 12 = 0$

6. Let $f(x) = \frac{1}{2}\sqrt{x}$. Write the equation of $g(x)$ which is the graph of $f(x)$ reflected in the $x$-axis.

   (a) $g(x) = 2\sqrt{x}$
   (b) $g(x) = \frac{1}{2}\sqrt{-x}$
   (c) $g(x) = -\frac{1}{2}\sqrt{x}$
   (d) $g(x) = -\frac{1}{2}\sqrt{-x}$

7. Let $f(x) = \frac{4}{x}$. Write the equation of $g(x)$ which is the graph of $f(x)$ translated 2 units right and 1 unit down.

   (a) $g(x) = \frac{4}{x+2} - 1$
   (b) $g(x) = \frac{4}{x+2} + 1$
   (c) $g(x) = \frac{4}{x-2} + 1$
   (d) $g(x) = \frac{4}{x-2} - 1$

8. Find $f$ where $g(x) = x^2 + 6$ and $f \circ g(x) = (x^2 + 6)^2$.

   (a) $f(x) = x^3$
   (b) $f(x) = x^2$
   (c) $f(x) = \sqrt{x}$
   (d) $f(x) = \frac{4}{x^2}$

9. Complete the square to write the standard form of the parabola $f(x) = \frac{1}{2}x^2 - 2x + 1$.

   (a) $\frac{1}{2}(x-1)^2$
   (b) $\frac{1}{2}(x-2)^2 - 1$
   (c) $\frac{1}{2}(x-2)^2 - 3$
   (d) $\frac{1}{2}(x-1)^2 - 1$

10. List the transformations of the function $f(-x+3)$ from $f(x)$.

    (a) reflect on $x$-axis then move left 3 units
    (b) reflect on $y$-axis then move left 3 units
    (c) reflect on $x$-axis then move right 3 units
    (d) reflect on $y$-axis then move right 3 units

11. If the point $(2, 3)$ is on the graph of $R(x)$, then what point must be on the graph of $R^{-1}(x) - 1$?

    (a) (2,3)
    (b) (3,1)
    (c) (2,4)
    (d) (3,3)

12. If the point $(2, 3)$ is on the graph of $R(x)$, then what point must be on the graph of $2R(\frac{1}{3}x)$?

    (a) (4,1)
    (b) (1,1)
    (c) (4,9)
    (d) (1,9)

13. Let $f(x) = x - x^2$. Evaluate and simplify $f(x+h) - f(x)$.

    (a) $h - 2xh - h^2$
    (b) $h$
    (c) $h - h^2$
    (d) $h + xh - h^2$

14. Which of the following is a function?

    (a) { (1,2), (2,1), (3,3) }
    (b) { 1, 2, 3, }
    (c) { (1,2), (2, 3), (1, 3)}
    (d) { (1,2), (-3, 3), (-3, 1) (3, -3)}

15. If $f(x) = -3x^2 - 2$ then what is $\frac{f(x+h)-f(x)}{x}$?

    (a) $-6x + 6h$
    (b) 1
    (c) $-6x$
    (d) $-6x - 6h$

16. Find $f(-1)$ given $f(x) = x^3 - x + 3$

    (a) 3
    (b) 5
    (c) -1
    (d) 1

17. If (5,2) is a point on the graph of an even function $f(x)$ with domain all real numbers then what other point must be on the graph of $f(x)$?

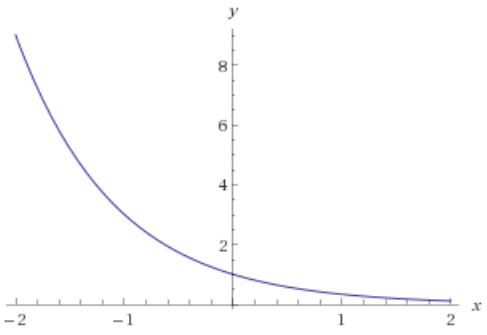
    (a) (2,5)
    (b) (0,0)
    (c) (-5, -2)
    (d) (-5, 2)

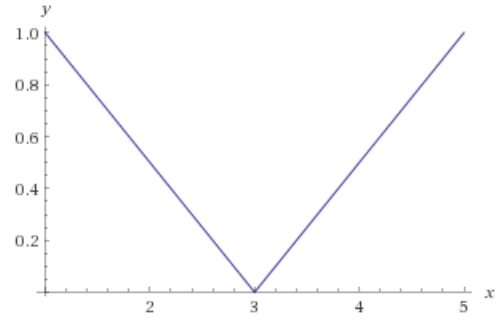
18. Graph: $f(x) = (\frac{1}{3})^x$

19. Graph: $f(x) = \frac{1}{2}|x - 3|$

20. Graph: $f(x) = \frac{1}{(x+1)^2} - 4$

1. B
2. B
3. B
4. C
5. B
6. C
7. D
8. B
9. C
10. D
11. B
12. C
13. A
14. A
15. D
16. A
17. D

18. 


19. 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