Test Form A

Chapter P

Name _____ Date _____

Class _____ Section _____

1. Find all intercepts of the graph of $y = \dfrac{x+2}{x-3}$.

   (a) $(-2, 0)$

   (b) $(-2, 0), (3, 0)$

   (c) $\left(0, \dfrac{2}{3}\right), (3, 0)$

   (d) $(-2, 0), \left(0, -\dfrac{2}{3}\right)$

   (e) None of these

2. Determine if the graph of $y = \dfrac{x}{x^2 - 4}$ is symmetrical with respect to the x-axis, the y-axis, or the origin.

   (a) About the x-axis

   (b) About the y-axis

   (c) About the origin

   (d) All of these

   (e) None of these

3. Find all points of intersection of the graphs of $x^2 - 2x - y = 6$ and $x - y = -4$.

   (a) $(0, -6), (0, 4)$

   (b) $(10, 14), (13, 17)$

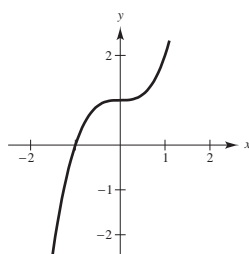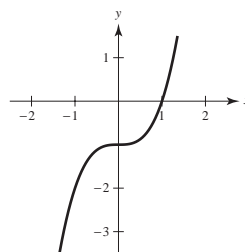   (c) $(5, 9), (-2, 2)$

   (d) $(-5, -1), (2, 6)$

   (e) None of these

4. Which of the following is a sketch of the graph of the function $y = x^3 + 1$?
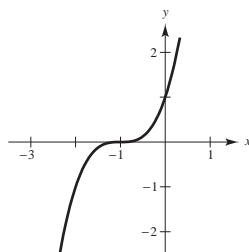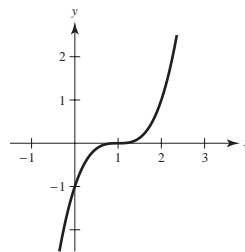
(a)

(b)

(c)

(d)

   (e) None of these

5. Find an equation for the line passing through the point $(4, -1)$ and perpendicular to the line $2x - 3y = 3$.

   (a) $y = \dfrac{2}{3}x - 1$

   (b) $3x + 2y + 2 = 0$

   (c) $2x + 3y = 10$

   (d) $3x + 2y = 10$

   (e) None of these

6. Find the domain of $f(x) = \dfrac{1}{\sqrt{3 - 2x}}$.

(a) $\left(-\infty, \dfrac{3}{2}\right)$

(b) $\left[\dfrac{3}{2}, \infty\right)$

(c) $\left(\dfrac{3}{2}, \infty\right)$

(d) $\left(-\infty, \dfrac{3}{2}\right) \cup \left(\dfrac{3}{2}, \infty\right)$

(e) None of these

7. Find $f(x + \Delta x)$ for $f(x) = x^3 + 1$.

(a) $x^3 + 1 + \Delta x$

(b) $x^3 + 3x^2(\Delta x) + 3x(\Delta x)^2 + (\Delta x)^3 + 1$

(c) $x^3 + (\Delta x)^3 + 1$

(d) $\Delta^3 x^6 + 1$

(e) None of these

8. If $f(x) = \dfrac{1}{\sqrt{x}}$ and $g(x) = 1 - x^2$, find $f(g(x))$.

(a) $\dfrac{1 - x^2}{\sqrt{x}}$

(b) $\dfrac{1}{\sqrt{1 - x^2}}$

(c) $1 - \dfrac{1}{x}$

(d) $\dfrac{1}{\sqrt{x}} + 1 - x^2$

(e) None of these

9. If the point $\left(-3, \dfrac{1}{2}\right)$ lies on the graph of the equation $2x + ky = -11$, find the value of k.

(a) $-\dfrac{5}{2}$

(b) -34

(c) $-\dfrac{17}{2}$

(d) -10

(e) None of these

10. Which of the following equations expresses y as a function of x?

(a) $3y + 2x - 9 = 17$

(b) $2x^2 y + x = 4y$

(c) Both **a** and **b**

(d) Neither **a** nor **b**

(e) $3y^2 - x^2 = 5$

11. Given $f(x) = x^2 - 3x + 4$, find $f(x + 2) - f(2)$.

(a) $x^2 - 3x + 4$

(b) $x^2 + x$

(c) $x^2 + x - 8$

(d) $x^2 - 3x - 4$

(e) None of these

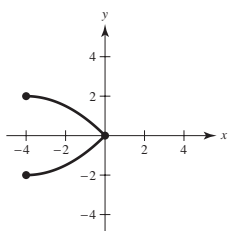**12.** Determine which function is neither even nor odd.

(a) $f(x) = \tan x$

(b) $f(x) = 3x^5 + 5x^3 + 1$

(c) $f(x) = \dfrac{3}{x^2}$

(d) $f(x) = \sqrt{x^2 + 1}$

(e) Both **a** and **b**

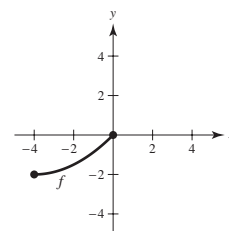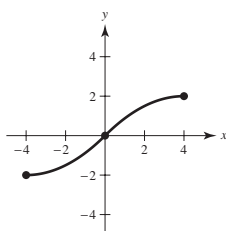**13.** Find the point that lies on the line determined by the points $(1, -2)$ and $(-3, 1)$.

(a) $(0, 0)$

(b) $(5, 1)$

(c) $(4, -6)$

(d) $(5, -5)$

(e) $(-2, 0)$

14. The domain of the function f shown in the figure is $-4 \le x \le 4$. Choose the complete graph of f if f is even.
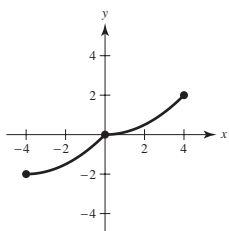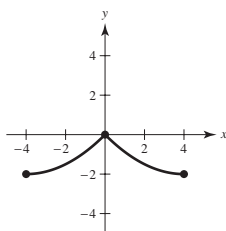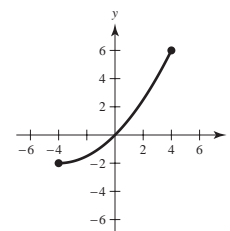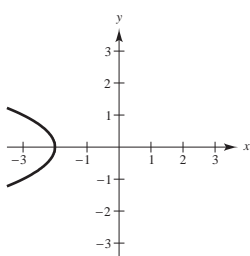
(a)

(b)

(c)

(d)

(e)

15. Describe the transformation needed to sketch the graph of $y = \dfrac{1}{x-2}$ using the graph of $f(x) = \dfrac{1}{x}$.
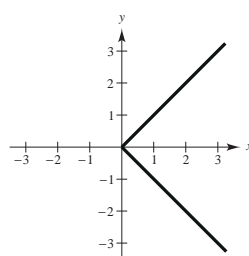
(a) Shift $f(x)$ two units to the right.

(b) Shift $f(x)$ two units to the left.

(c) Shift $f(x)$ two units upward.

(d) Shift $f(x)$ two units downward.

(e) Reflect $f(x)$ about the x-axis.

16. Use the vertical line test to determine which of the following graphs represent y as a function of x.
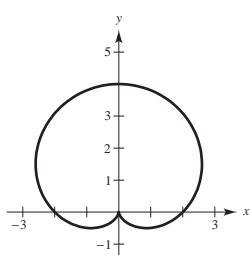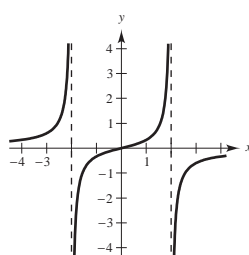
(a)

(b)

(c)

(d)

(e) None of these

17. Let $f(x) = \begin{cases} \dfrac{1}{x} & x < 0 \\ 2x + 1, & x \geq 0 \end{cases}$. Find $f(3)$.

(a) $\dfrac{1}{3}$

(b) 1

(c) 7

(d) Undefined

(e) $\dfrac{22}{3}$

18. The dollar value of a product in 1998 is \$1430. The value of the product is expected to increase \$83 per year for the next 5 years. Write a linear equation that gives the dollar value V of the product in terms of the year t. (Let $t = 8$ represent 1998.)

(a) $V = 1430 + 83(t - 8)$

(b) $V = 83 + 1430t$

(c) $V = 1430 + 83t$

(d) $V = 83 + 1430(t + 8)$

(e) $V = 1430 + 83(t + 8)$

19. During the first and second quarters of the year, a business had sales of \$150,000 and \$185,000, respectively. If the growth of sales follows a linear pattern, what will sales be during the fourth quarter?

(a) \$220,000

(b) \$235,000

(c) \$335,000

(d) \$255,000

(e) None of these

20. In order for a company to realize a profit in the manufacture and sale of a certain item, the revenue, R, for selling x items must be greater than the cost, C, of producing x items. If $R = 79.99x$ and $C = 61x + 1050$, for what values of x will this product return a profit?

(a) $x \geq 55$

(b) $x \geq 8$

(c) $x \geq 18$

(d) $x \geq 56$

(e) None of these