

Algebra 2 – Practice for 3.1-3.3 Quiz

Name key

Identify each function as even or odd.

1. Graph resembles a parabola

*even*

3. Graph has a turning point

*odd*

5. Graph is symmetric 180° about a point

*odd*

7. Graph is symmetric across a vertical line

*even*

9. Graph has two ends with the same end behavior

*even*

2. Graph has no minimum or maximum

*odd*

4. Graph has one minimum or one maximum

*even*

6. Graph has a vertex

*even*

8. Graph has two different end behaviors

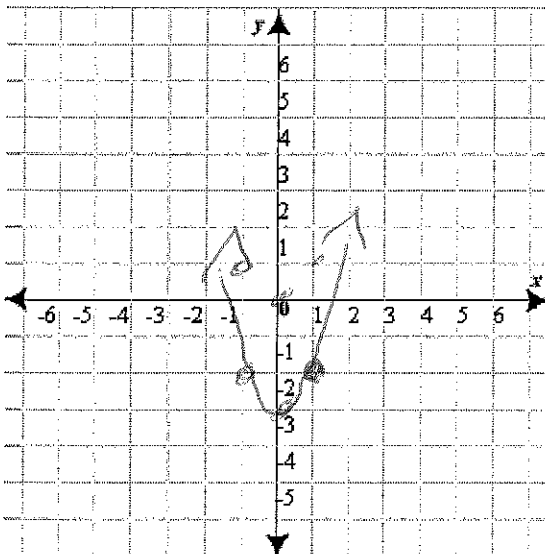
*odd*

10. Graph resembles an s-curve

*odd*

Graph each function. State the domain and range.

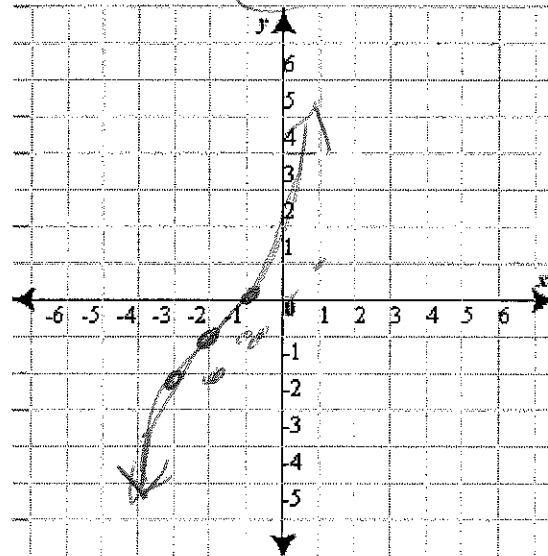
11.  $f(x) = x^4 - 3$



Domain:  $x \in \mathbb{R}$

Range:  $y \in \mathbb{R}; y \geq -3$

12.  $f(x) = (x + 2)^3 - 1$

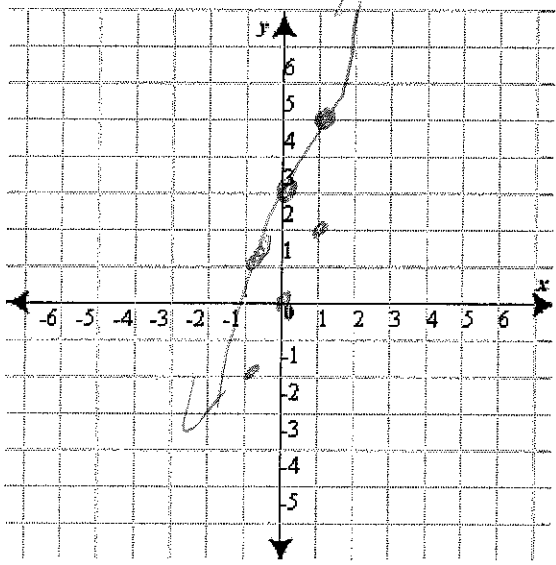


Domain:  $x \in \mathbb{R}$

Range:  $y \in \mathbb{R}$

13.  $f(x) = 2x^5 + 3$

$$\begin{array}{r|rrrr} 1 & 2 & 0 & 0 & 0 & 3 \\ & & 0 & 0 & 0 & \\ & & 1 & 0 & 0 & \\ \hline & & & & & \end{array}$$

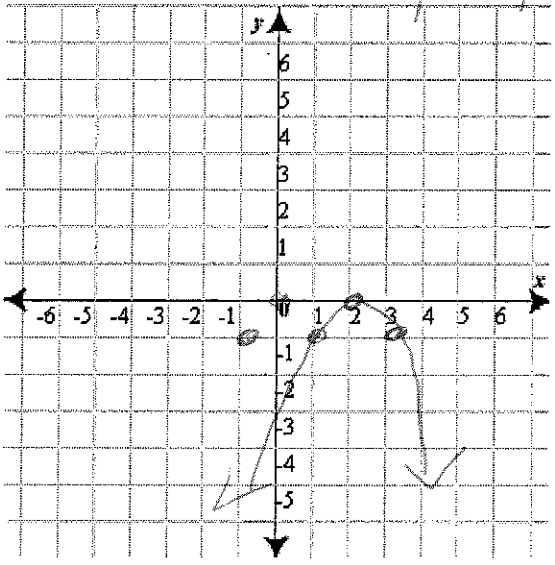


Domain:  $x \in \mathbb{R}$

Range:  $y \in \mathbb{R}$

14.  $f(x) = -(x-2)^6$

$$\begin{array}{r|rr} 1 & -1 & 12 & -60 & 120 & -120 & 720 & -2520 & 5040 & -5040 & 2520 & -720 & 120 & -12 & 1 \\ & & & & & & & & & & & & & & & \\ & & & & & & & & & & & & & & & \\ \hline & & & & & & & & & & & & & & & \end{array}$$

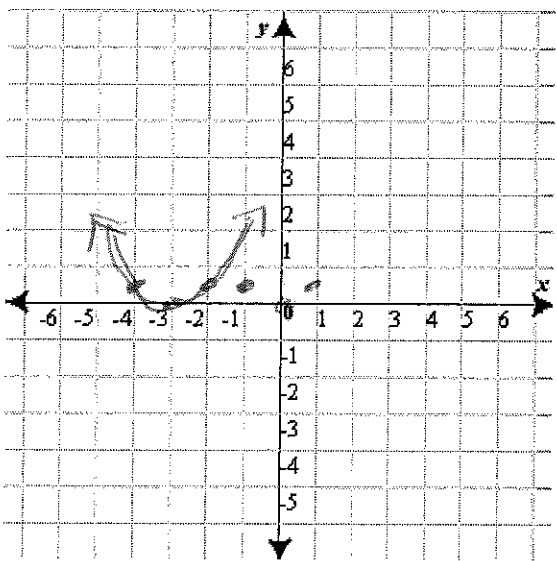


Domain:  $x \in \mathbb{R}$

Range:  $y \in \mathbb{R}; y \leq 0$

15.  $f(x) = \frac{1}{2}(x+3)^4$

$$\begin{array}{r|rr} 1 & 1/2 & 6 & 9 & 0 & 27/2 \\ & & & & & \\ & & & & & \\ \hline & & & & & \end{array}$$

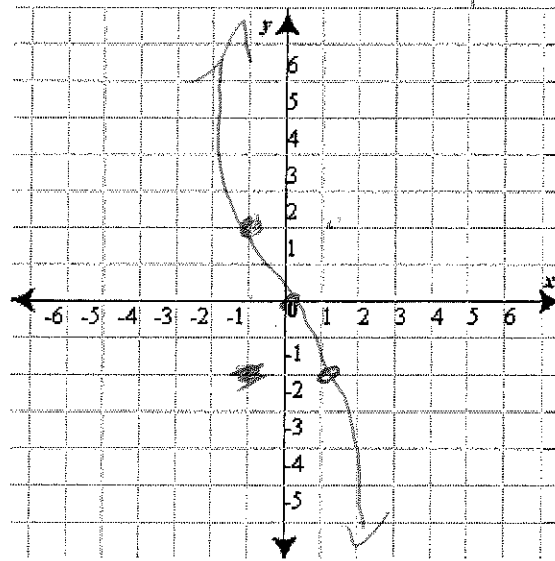


Domain:  $x \in \mathbb{R}$

Range:  $y \in \mathbb{R}; y \geq 0$

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

$$\begin{array}{r|rr} -1 & -2 & 6 & -6 & 2 \\ & & & & \\ & & & & \\ \hline & & & & \end{array}$$



Domain:  $x \in \mathbb{R}$

Range:  $y \in \mathbb{R}$

Describe the transformation(s) in each function.

17.  $f(x) = (x + 3)^3 - 2$

H. shift  $\leftarrow 3$  V. shift  $\downarrow 2$

18.  $f(x) = \frac{1}{3}x^4 - 1$

V. Shrink BAFO  $\frac{1}{3}$   
V. shift  $\downarrow 1$

19.  $f(x) = -2(x + 1)^5 + 5$

Reflection over the x-axis  
V. stretch BAFO 2  
H. shift  $\leftarrow 1$  V. shift  $\uparrow 5$

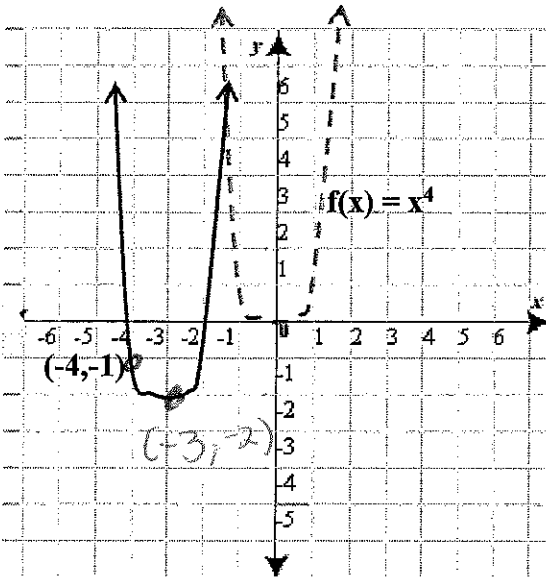
20.  $f(x) = \frac{5}{2}(x - 2)^6$

V. stretch BAFO  $\frac{5}{2}$   
H. shift  $\rightarrow 2$

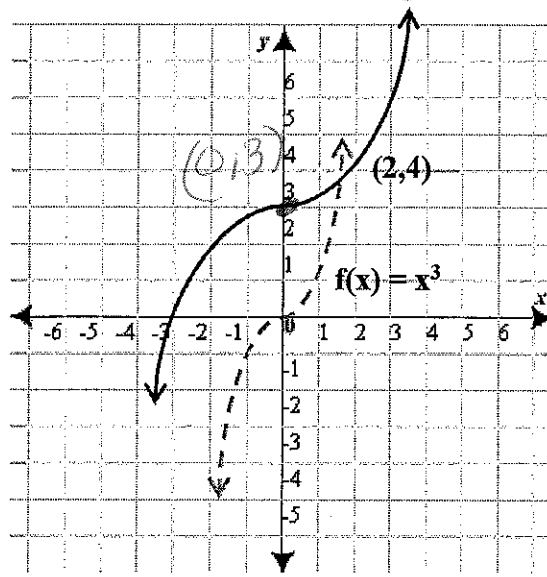
Write the equation for each function. The parent graph is given.

$f(x) = \frac{1}{8}x^3 + 3$

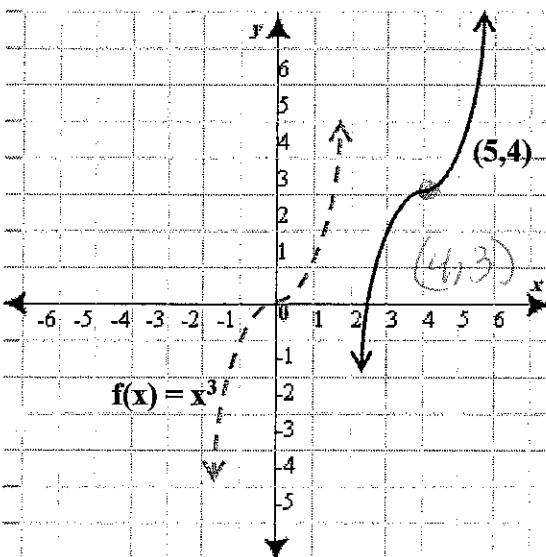
21.  $f(x) = (x + 3)^4 - 2$



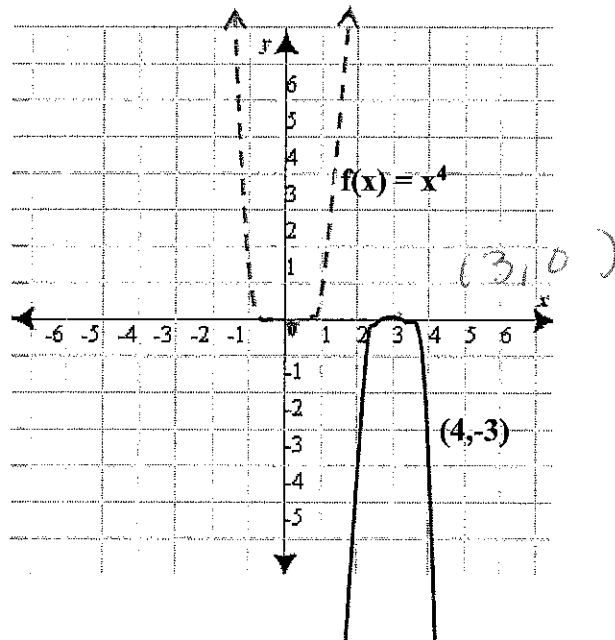
22.  $f(x) = \frac{1}{8}(x)^3 + 3$  or



23.  $f(x) = (x - 4)^3 + 3$



24.  $f(x) = -3(x - 3)^4$



$$\textcircled{21} f(x) = a(x+3)^4 - 2$$

$$-1 = a(-4+3)^4 - 2$$

$$-1 = a(-1)^4 - 2$$

$$-1 = a(1) - 2$$

$$-1 = a - 2$$

$$+2 \quad +2$$

$$a = 1$$

$$\textcircled{22} f(x) = a(x-0)^3 + 3$$

$$4 = a(2-0)^3 + 3$$

$$4 = a(8) + 3$$

$$+1 = \frac{8a}{8}$$

$$a = +\frac{1}{8}$$

$$\textcircled{23} f(x) = a(x-4)^3 + 3$$

$$4 = a(5-4)^3 + 3$$

$$4 = a(1)^3 + 3$$

$$-3 \quad -3$$

$$1 = a$$

$$\textcircled{24}$$

$$f(x) = a(x-3)^4 + 0$$

$$-3 = a(4-3)^4 + 0$$

$$-3 = a(1)^4 + 0$$

$$-3 = a$$