

Unit 7 Review

Write the equation of the graph that meets each criteria:

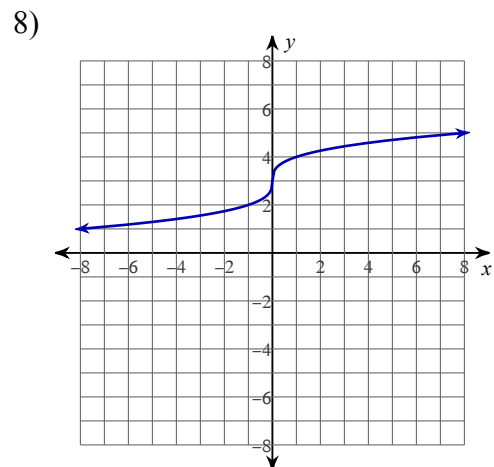
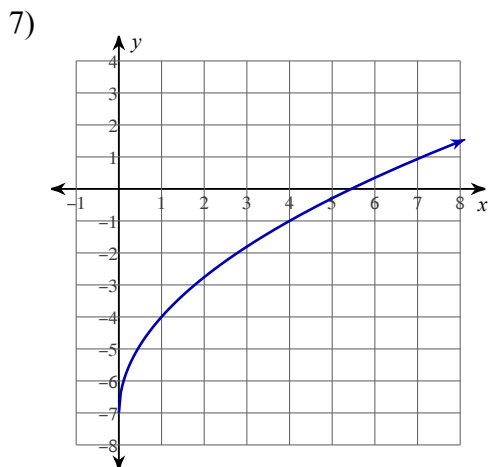
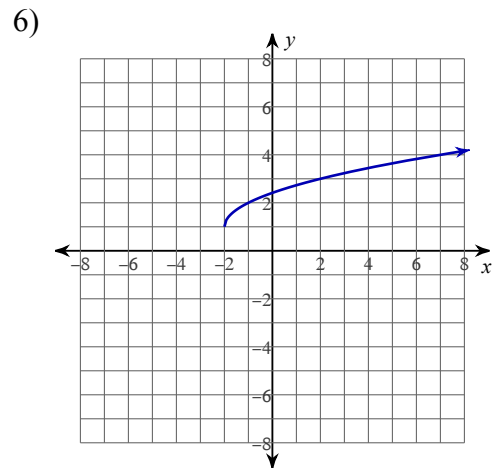
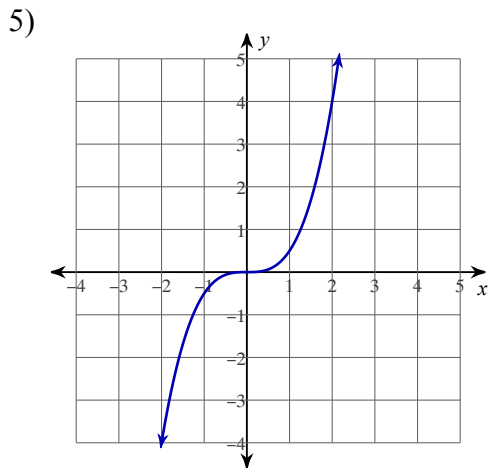
- 1) Parent function:  $y = x^3$   
 Reflected about the  $x$  axis.  
 A vertical compression by a factor of .5  
 A vertical translation of 7 units up.  
 A horizontal translation of 2 units left.

- 2) Parent function:  $y = \sqrt{x}$   
 A vertical stretch by a factor of 2.  
 A reflection across the  $x$  axis.  
 A vertical translation of 2 units right.

- 3) Parent function:  $y = \sqrt[3]{x}$   
 A reflection about the  $x$  axis.  
 A vertical translation of 2 units up.  
 A horizontal translation of 4 units to the left.

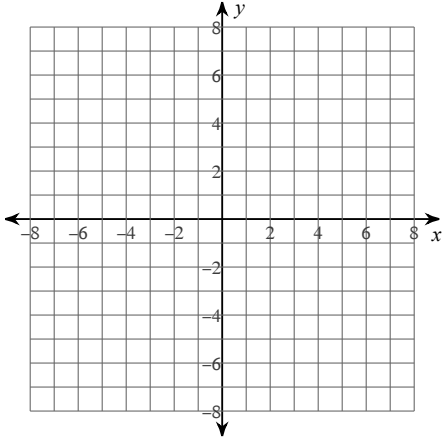
- 4) Parent function:  $y = \sqrt{x}$   
 A vertical stretch by a factor of 4.  
 A horizontal translation of 8 units right.

Write the equation of each function below:

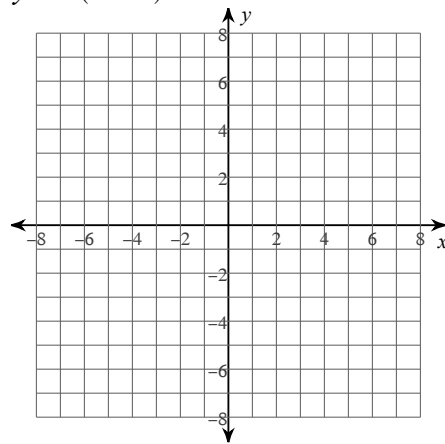


State the domain and range of each function then sketch the graph of each function:

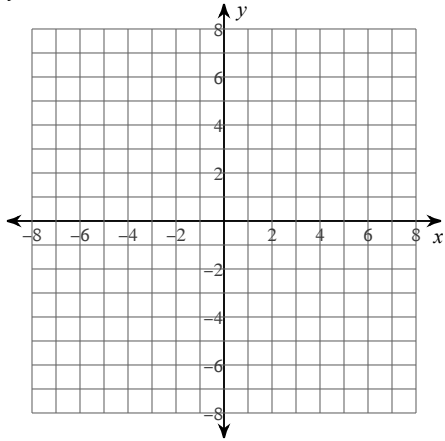
9)  $y = -x^3 - 2$



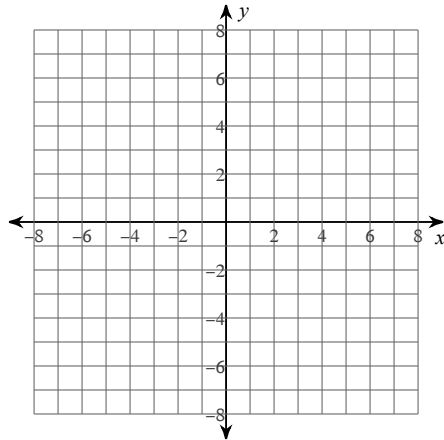
10)  $y = 2(x - 1)^3 - 2$



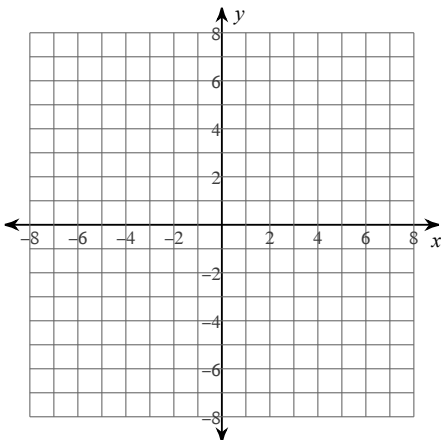
11)  $y = (x + 2)^3 + 2$



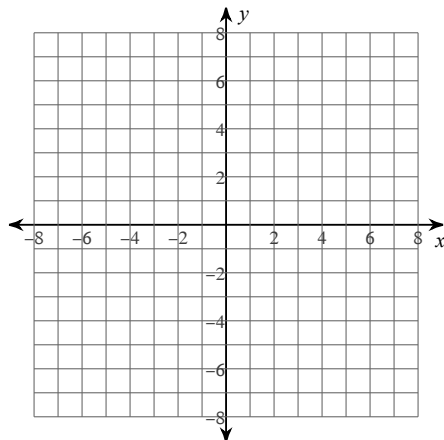
12)  $y = 3\sqrt[3]{x}$



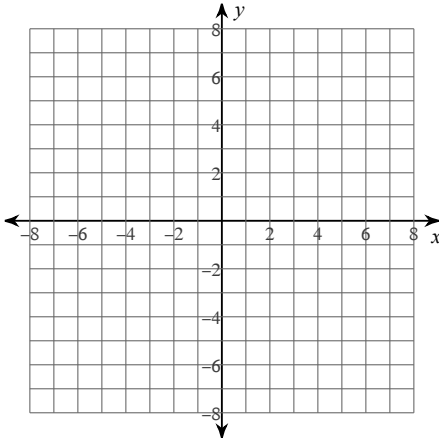
13)  $y = \sqrt[3]{x - 3} + 1$



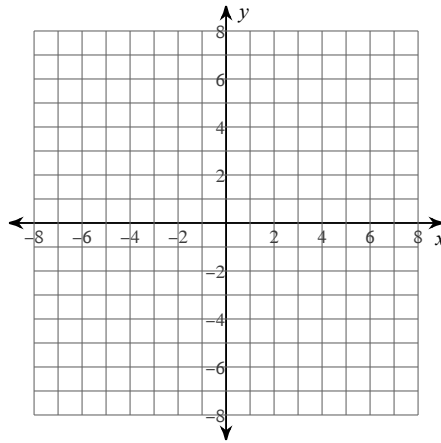
14)  $y = 2\sqrt{x - 4}$



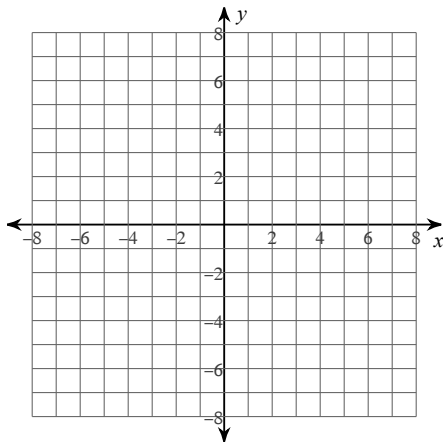
$$15) y = \frac{1}{2}\sqrt{x}$$



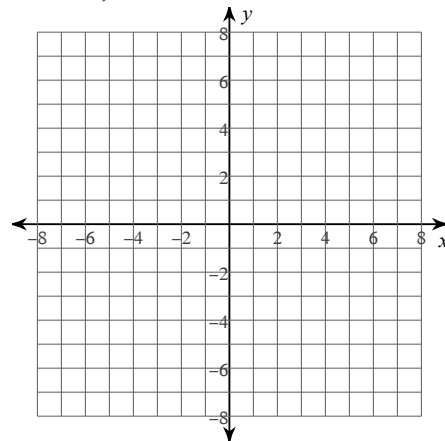
$$16) y = 2\sqrt{x+4}$$



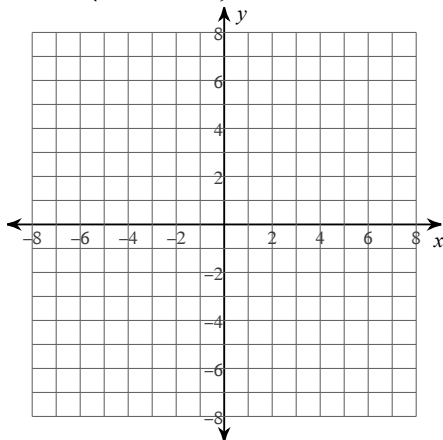
$$17) \begin{cases} |x| + 1, & -2 \leq x < 2 \\ -|x - 3|, & 2 \leq x < 7 \end{cases}$$



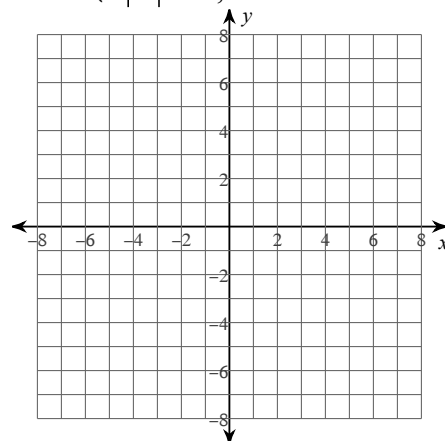
$$18) \begin{cases} 2x^2 - 1, & x < 1 \\ -2, & 1 \leq x < 4 \\ -\sqrt{x}, & x > 4 \end{cases}$$



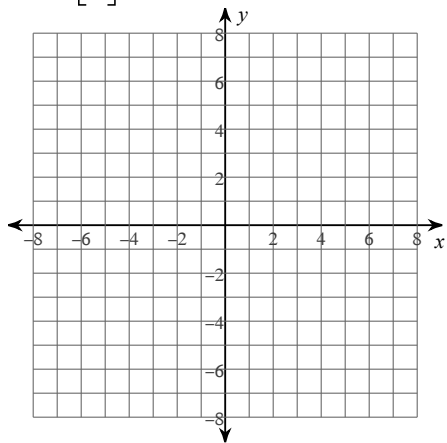
$$19) f(x) = \begin{cases} x, & x < 2 \\ 0.5x^2 - 4, & 2 \leq x < 4 \end{cases}$$



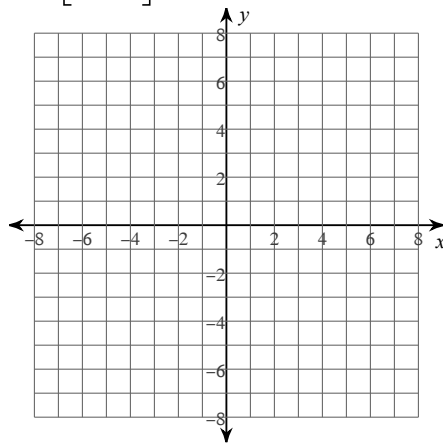
$$20) f(x) = \begin{cases} 0.5x^3, & x \leq -2 \\ 2|x| - 2, & x > -2 \end{cases}$$



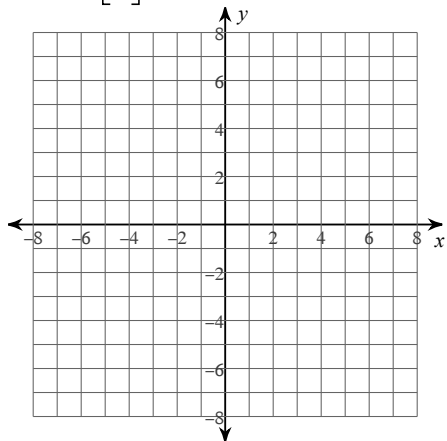
21)  $y = 2|x| + 2$



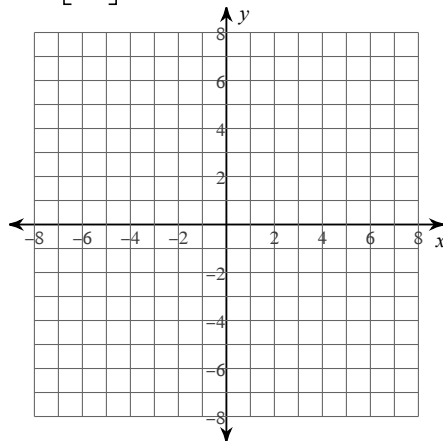
22)  $y = |x - 1| + 1$



23)  $y = 0.5|x| - 8$



24)  $y = |3x| - 8$



25) Given  $y = \begin{cases} 3x^2 + 2, & -9 \leq x < -1 \\ \sqrt{x} - 5, & -1 < x \leq 4 \\ |x|, & x > 4 \end{cases}$

Find:

a)  $f(-5)$

b)  $f(-1)$

c)  $f(4)$

d)  $f(7)$

**Find the inverse of each function.**

$$26) h(x) = -2 - \frac{2}{3}x$$

$$27) f(n) = 3n - 15$$

$$28) f(n) = \frac{n-1}{2}$$

$$29) f(x) = \frac{5x-20}{4}$$

$$30) f(x) = \sqrt[5]{x} - 2$$

$$31) g(x) = (x-1)^3 + 2$$