

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.

$$y = -.5(x+2)^3 + 7$$

- 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.

$$y = -\sqrt[3]{x+4} + 2$$

- 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.

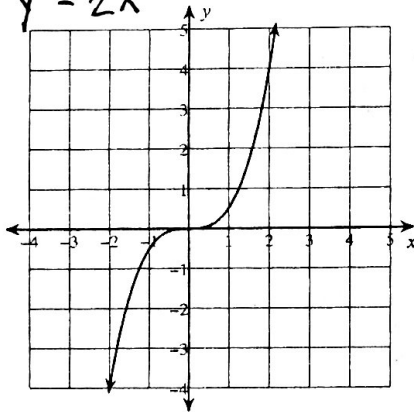
$$y = -2\sqrt{x-2}$$

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

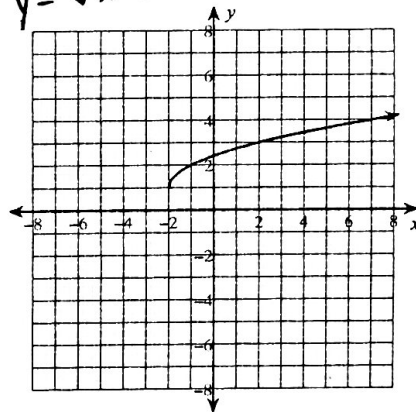
$$y = 4\sqrt{x-8}$$

Write the equation of each function below:

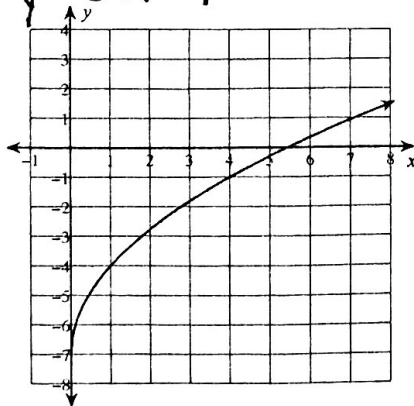
5) $y = \frac{1}{2}x^3$



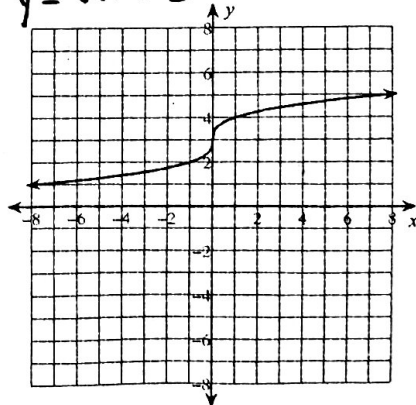
6) $y = \sqrt{x+2} + 1$



7) $y = \sqrt[3]{x} - 7$

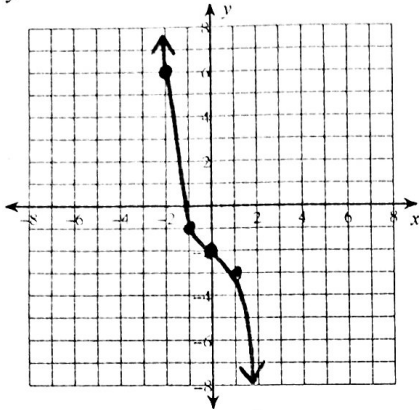


8) $y = \sqrt[3]{x} + 3$



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

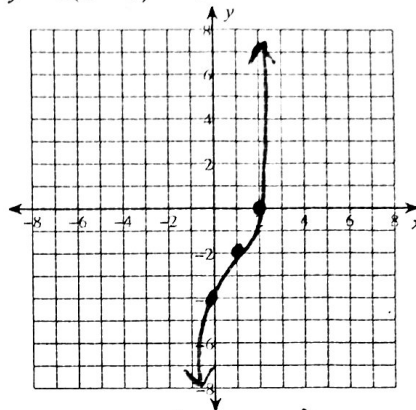
9) $y = -x^3 - 2$



$D: (-\infty, \infty)$

$R: (-\infty, \infty)$

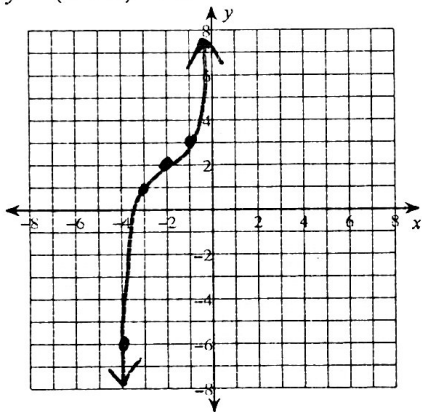
10) $y = 2(x - 1)^3 - 2$



$D: (-\infty, \infty)$

$R: (-\infty, \infty)$

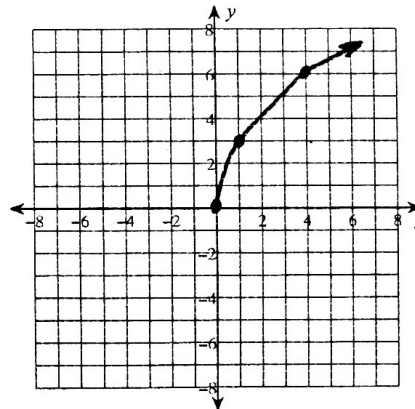
11) $y = (x + 2)^3 + 2$



$D: (-\infty, \infty)$

$R: (-\infty, \infty)$

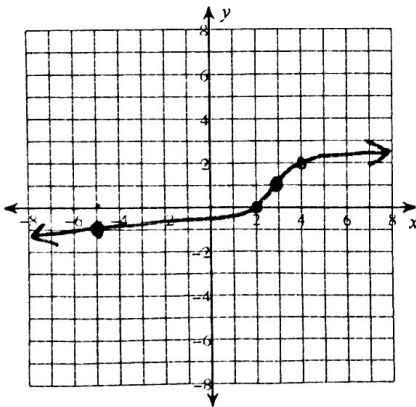
12) $y = 3\sqrt[3]{x}$



$D: [0, \infty)$

$R: [0, \infty)$

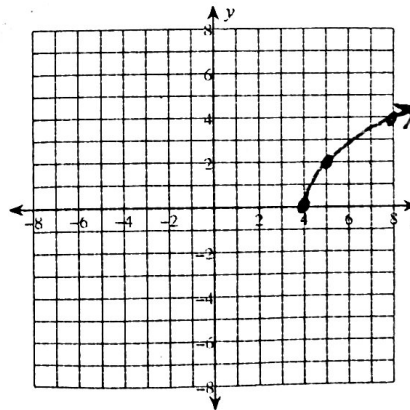
13) $y = \sqrt[3]{x - 3} + 1$



$D: (-\infty, \infty)$

$R: (-\infty, \infty)$

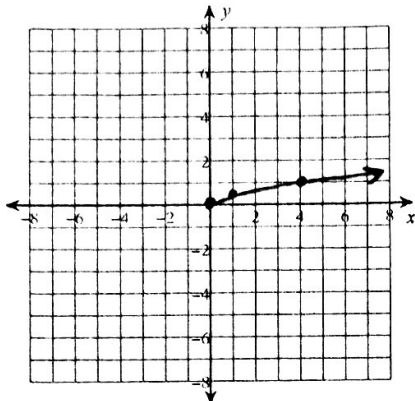
14) $y = 2\sqrt{x - 4}$



$D: [4, \infty)$

$R: [0, \infty)$

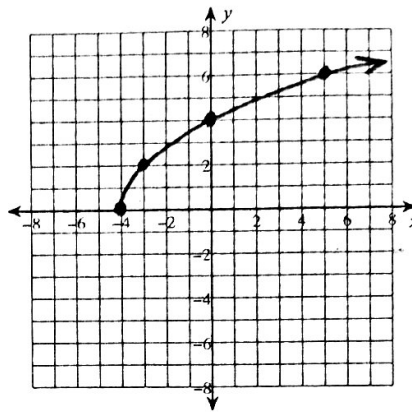
$$15) y = \frac{1}{2}\sqrt{x}$$



$$D: [0, \infty)$$

$$R: [0, \infty)$$

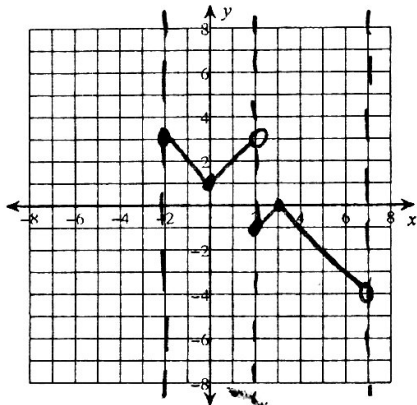
$$16) y = 2\sqrt{x+4}$$



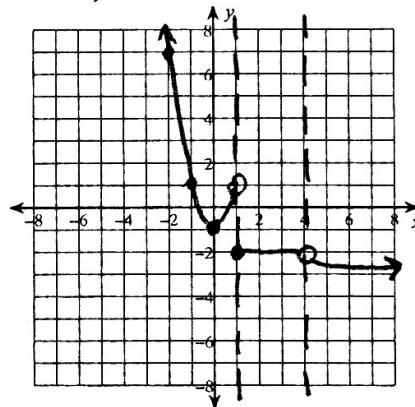
$$D: [-4, \infty)$$

$$R: [0, \infty)$$

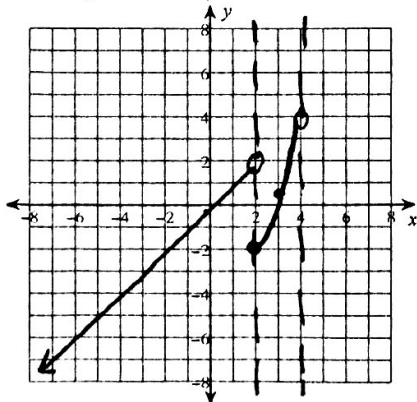
$$17) \begin{cases} |x| + 1, & -2 \leq x < 2 \\ -|x-3|, & 2 \leq x < 7 \end{cases}$$



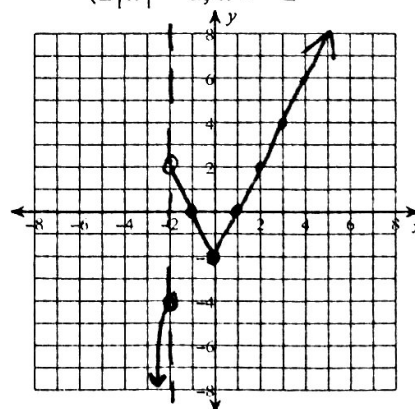
$$18) \begin{cases} 2x^2 - 1, & x < 1 \\ -2, & 1 \leq x < 4 \\ -\sqrt{x}, & x > 4 \end{cases}$$



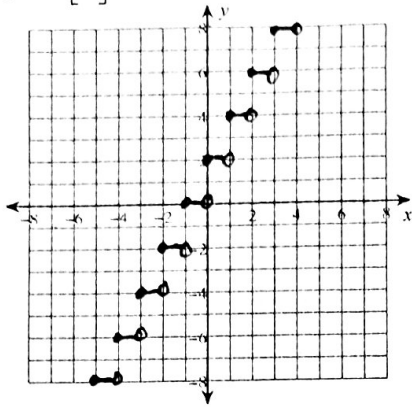
$$19) f(x) = \begin{cases} x, & x < 2 \\ 0.5x^2 - 4, & 2 \leq x < 4 \end{cases}$$



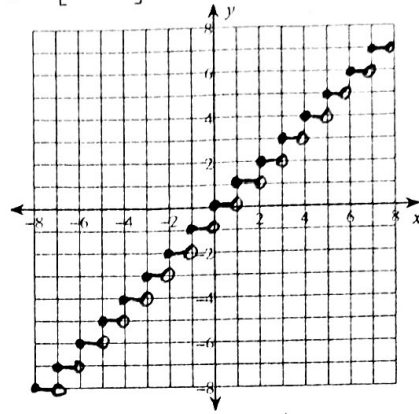
$$20) f(x) = \begin{cases} 0.5x^3, & x \leq -2 \\ 2|x| - 2, & x > -2 \end{cases}$$



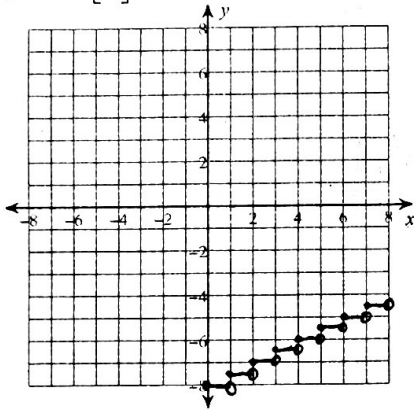
21) $y = 2[x] + 2$



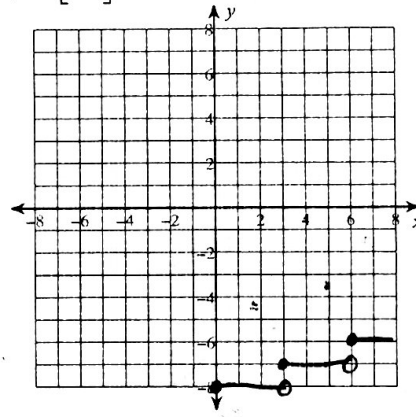
22) $y = [x - 1] + 1$



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) $f(-5)$

77

b) $f(-1)$

DNE

c) $f(4)$

-3

d) $f(7)$

7

Find the inverse of each function.

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

$$h^{-1}(x) = \frac{-3x-6}{2}$$

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

$$f^{-1}(n) = 2n+1$$

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

$$f^{-1}(x) = (x+2)^5$$

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

$$f^{-1}(n) = \frac{n+15}{3}$$

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

$$f^{-1}(x) = \frac{4x+20}{5}$$

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

$$g^{-1}(x) = \sqrt[3]{x-2} + 1$$