

1. List the steps needed in the correct order to graph the following.

a. $2f(4x - 12) + 4$

b. $\frac{1}{2}f(-x - 3) + 7$

c. $-f\left(\frac{1}{2}x - 4\right)$

d. $5f(15 - 3x)$

2. Using the toolkit of functions, graph the following. Then state the domain and range of each.

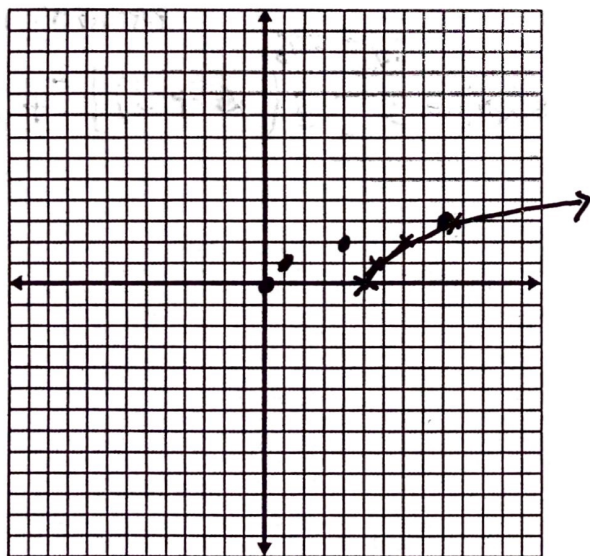
a. $f(x) = \sqrt{\frac{2x - 10}{2}}$ PARENT: $y = \sqrt{x}$

rewrite: $f(x) = \sqrt{2(x - 5)}$

- horizontal compression of $\frac{1}{2}$
- right 5

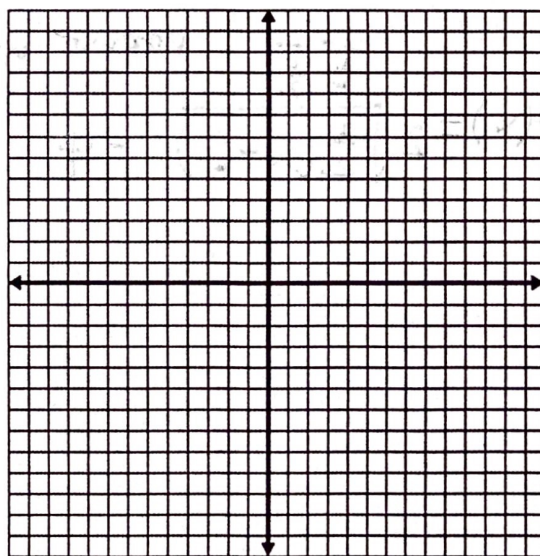
b. $g(x) = \sqrt[3]{\frac{2x + 6}{2}} - 4$ PARENT: $y = \sqrt[3]{x}$

$g(x) = \sqrt[3]{2(x + 3)} - 4$



D: $\{x \mid x \geq 5\}$

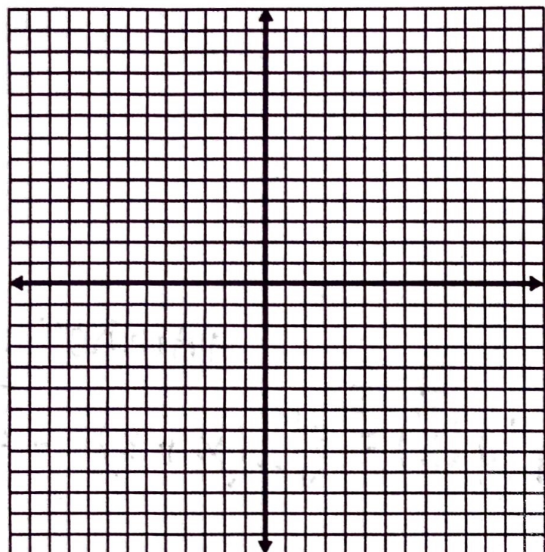
R: $\{y \mid y \geq 0\}$



D:

R:

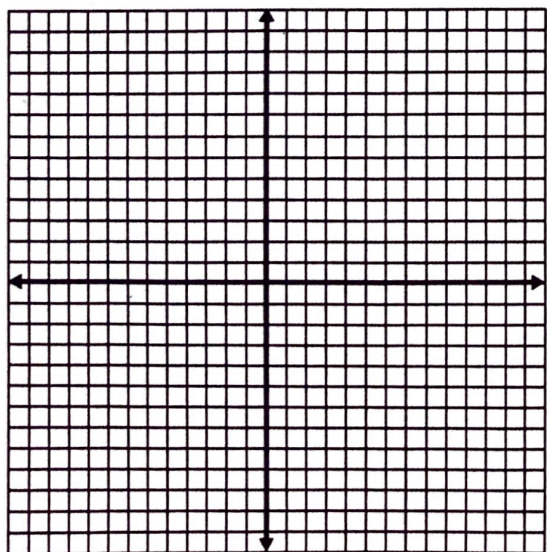
c. $h(x) = \left(\frac{3x+9}{3}\right)^2 - 1$ PARENT: $y = x^2$
 $h(x) = (3(x+3))^2 - 1$



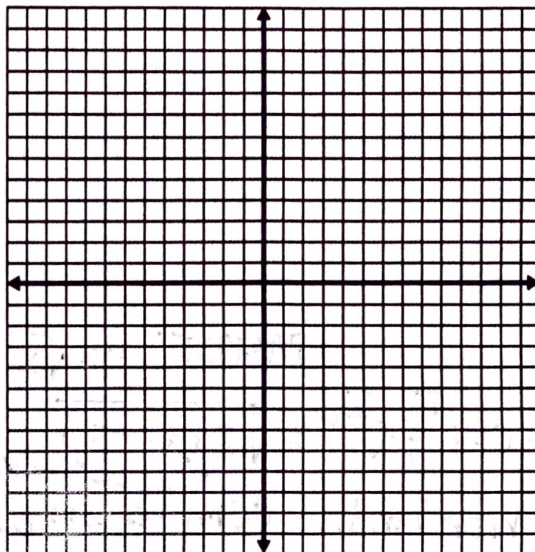
D:

R:

e. $p(x) = 2\sqrt{\frac{1}{2}x - 3} - 4$ PARENT: $y = \sqrt{x}$
 $p(x) = 2\sqrt{\frac{1}{2}(x-6)} - 4$



d. $j(x) = |2x - 4| + 3$ PARENT: $y = |x|$
 $j(x) = |2(x-2)| + 3$



D:

R:

f. $k(x) = 3\left(-\frac{1}{3}x - 1\right)^2 + 2$ PARENT: $y = x^2$
 $k(x) = 3\left[-\frac{1}{3}(x+3)\right]^2 + 2$

