

Graphing Radical Functions

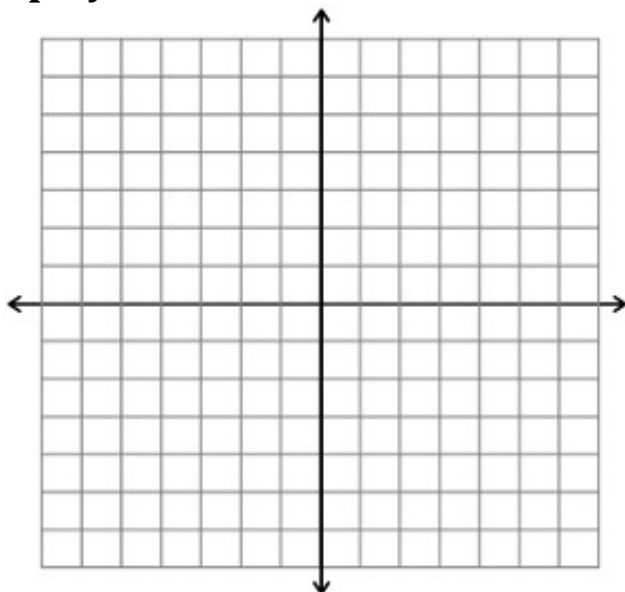
What values of “x” are we allowed to plug into these expressions?

1. $\sqrt{3x - 6}$

2. $\sqrt[3]{-2x - 6}$

3. $\sqrt{11x + 5}$

Graph $y = \sqrt{x}$. Use a table of values.



Domain:

Range:

Now graph $y = \sqrt{x} + 2$

- What is the domain? What is the range?

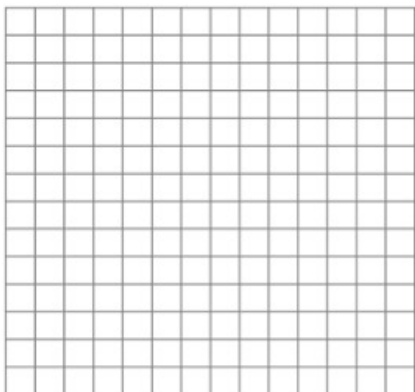
Graph $y = \sqrt{x - 3}$

You try:

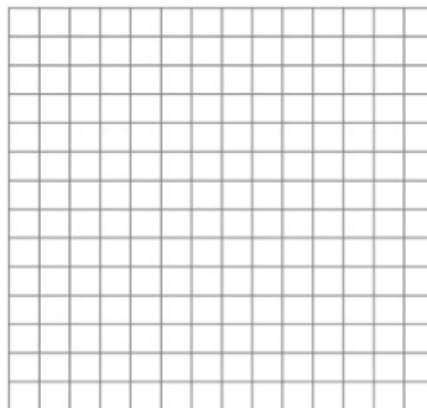
Graph $y = \sqrt{x + 1} + 3$

Vertical Stretch/Compression:

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



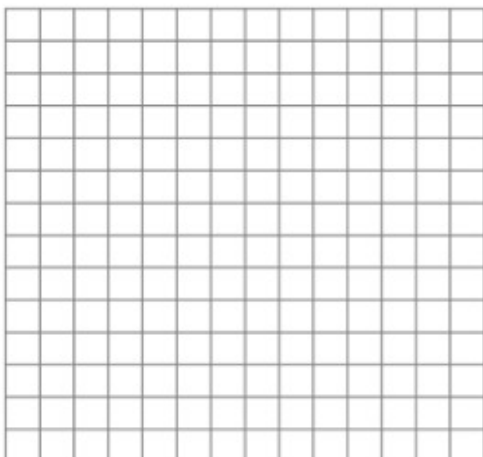
$$y = \frac{1}{2}\sqrt{x}$$



Horizontal Stretch/Compression:

- Stretches the graph either away or towards the y-axis

Graph and state transformations: $f(x) = \sqrt{2x}$ and $g(x) = \sqrt{\frac{1}{3}x}$



You try: **Describe the transformations:**

$$f(x) = \sqrt{4(x-1)} + 5$$

$$g(x) = -\sqrt{x+1}$$

$$h(x) = \sqrt{-x}$$

Create a function that transforms $y = \sqrt{x}$ by:

- 1. Vertically compressing it by a factor of $1/2$ and translating it 2 left**
- 2. Horizontally compressing it by a factor of $1/3$ and translating it 4 right**
- 3. Reflecting it across the y-axis and translating up 3**
- 4. Reflecting it across the y-axis and translating right 3**
- 5. Reflecting it across the x-axis and translating up 3**