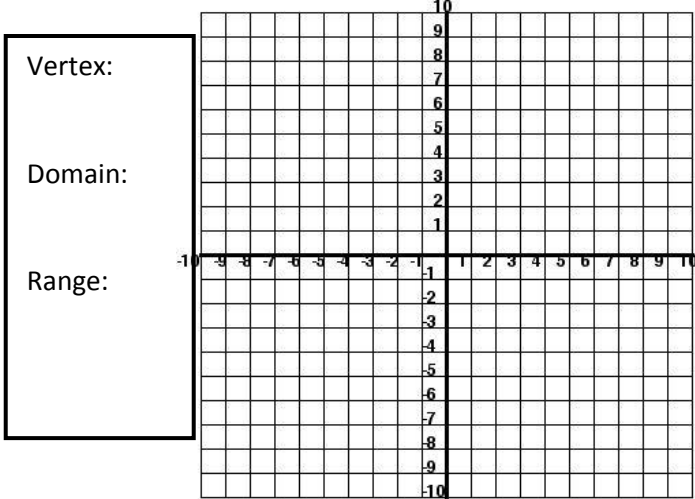
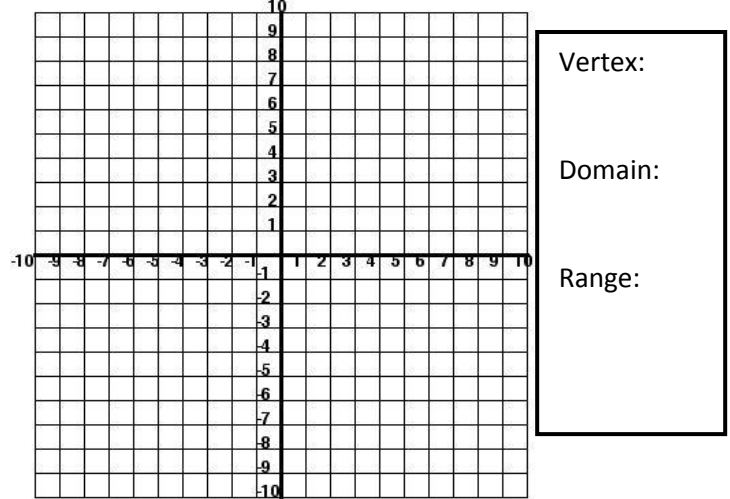


5.  $y = -\sqrt[3]{x+3}$



6.  $y = \sqrt[3]{x+2} - 5$



➤ Write the equation of the function:

7. Write the equation of a **cubed** function that has been translated left four units and up six units.

$$y = (x+4)^3 + 6$$

8. Write the equation of a **cube root** function that has been translated left seven units and down one unit.

$$y = \sqrt[3]{x+7} - 1$$

9. Write the equation of a **cube root** function that has been translated left four units and up six units and reflected across the  $x$ -axis.

$$y = -\sqrt[3]{x+4} + 6$$

10. Write the equation of a **square root** function that has been translated right three units and down two units.

$$y = \sqrt{x-3} - 2$$

11. Write the equation of a **square root** function that has been translated left two units and reflected across the  $x$ -axis.

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

12. Write the equation of a **square root** function that has been translated up two units and reflected across the  $x$ -axis and stretched by a factor of 2.

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

There are three steps to solving a radical equation: 1) Isolate the radical.  
 2) Raise both sides to the power of the root.  
 3) Solve for x.

➤ Examples:

<p>1. <math>\sqrt{x} = 8</math></p> <p><math>x = 64</math></p> <p><math>x = \underline{64}</math></p>	<p>2. <math>\sqrt{x+7} = 8</math></p> <p><math>x+7 = 64</math></p> <p><math>-7 \quad -7</math></p> <p><math>x = 57</math></p> <p><math>x = \underline{57}</math></p>	<p>3. <math>2\sqrt{x+6} = 14</math></p> <p><math>\sqrt{x+6} = 7</math></p> <p><math>x+6 = 49</math></p> <p><math>-6 \quad -6</math></p> <p><math>x = 43</math></p> <p><math>x = \underline{43}</math></p>
<p>4. <math>-4\sqrt{x} + 11 = 3</math></p> <p><math>-11 \quad -11</math></p> <p><math>-4\sqrt{x} = -8</math></p> <p><math>-4 \quad -4</math></p> <p><math>(\sqrt{x})^2 = (2)^2</math></p> <p><math>x = 4</math></p> <p><math>x = \underline{4}</math></p>	<p>5. <math>\sqrt{x-2} - 2 = 2</math></p> <p><math>+2 \quad +2</math></p> <p><u>PEMDAS</u></p> <p><math>(\sqrt{x-2})^2 = (4)^2</math></p> <p><math>x-2 = 16</math></p> <p><math>+2 \quad +2</math></p> <p><math>x = 18</math></p> <p><math>x = \underline{18}</math></p>	<p>6. <math>-3\sqrt[3]{2x+5} = -21</math></p> <p><math>-3 \quad -3</math></p> <p><math>(\sqrt[3]{2x+5})^3 = (7)^3</math></p> <p><math>2x+5 = 343</math></p> <p><math>-5 \quad -5</math></p> <p><math>2x = 338</math></p> <p><math>x = 169</math></p> <p><math>x = \underline{169}</math></p>
<p>7. <math>\sqrt{10x^2 - 49} = (3x)^2</math></p> <p><math>10x^2 - 49 = 9x^2</math></p> <p><math>-9x^2 \quad -9x^2</math></p> <p><math>x^2 - 49 = 0</math></p> <p><math>\sqrt{x^2} = \sqrt{49}</math></p> <p><math>(x-7)(x+7) = 0</math></p> <p><math>x = \pm 7</math></p> <p><math>x = 7</math></p> <p><math>x = \underline{7}</math></p>	<p>8. <math>\sqrt{2x-6} = \sqrt{5x-15}</math></p> <p><math>2x-6 = 5x-15</math></p> <p><math>-2x \quad -2x</math></p> <p><math>-6 = 3x-15</math></p> <p><math>+15 \quad +15</math></p> <p><math>\frac{9}{3} = \frac{3x}{3}</math></p> <p><math>x = 3</math></p> <p><math>x = \underline{3}</math></p>	<p>9. <math>(\sqrt[3]{6x-5})^3 = (\sqrt[3]{3x+2})^3</math></p> <p><math>6x-5 = 3x+2</math></p> <p><math>-3x \quad -3x</math></p> <p><math>3x-5 = 2</math></p> <p><math>+5 \quad +5</math></p> <p><math>\frac{3x}{3} = \frac{7}{3}</math></p> <p><math>x = \frac{7}{3}</math></p> <p><math>x = \underline{\frac{7}{3}}</math></p>

## Lesson 2 → Square Root &amp; Cube Root Equations HOMEWORK

<p>1. <math>(\sqrt{x-1})^2 = (3)^2</math>  <math>x-1=9</math>  <math>x=10</math></p> <p><math>x = \underline{\quad 10 \quad}</math></p>	<p>2. <math>2 = \left(\sqrt{\frac{x}{2}}\right)^2</math>  <math>\frac{4}{1} = \frac{x}{2}</math> <math>8 = 1x</math></p> <p><math>x = \underline{\quad 8 \quad}</math></p>
<p>3. <math>(\sqrt{-8+2x})^2 = (0)^2</math>  <math>-8+2x=0</math>  <math>+8 \quad +8</math>  <math>2x=8</math>  <math>x=4</math></p> <p><math>x = \underline{\quad 4 \quad}</math></p>	<p>4. <math>\sqrt{x+4} = 7</math>  <math>x+4=49</math>  <math>x=45</math></p> <p><math>x = \underline{\quad \quad \quad}</math></p>
<p>5. <math>\sqrt[3]{x-3} = 5</math>  <math>x-3=125</math>  <math>x=128</math></p> <p><math>x = \underline{\quad \quad \quad}</math></p>	<p>6. <math>\sqrt{2x-6} = \sqrt{3x-14}</math>  <math>2x-6=3x-14</math>  <math>-6=x-14</math>  <math>x=-8</math></p> <p><math>x = \underline{\quad -8 \quad}</math></p>
<p>7. <math>\sqrt{8x} = x</math>  <math>8x = x^2</math>  <math>x^2 - 8x = 0</math>  <math>x(x-8)</math>  <math>x=0 \quad x=8</math></p> <p><math>x = \underline{\quad 0 \quad 8 \quad}</math></p>	<p>8. <math>\sqrt[3]{9-x} = \sqrt[3]{1-9x}</math>  <math>9-x=1-9x</math>  <math>8-x=-9x</math>  <math>+x \quad +x</math>  <math>8 = -8x</math>  <math>\frac{8}{-8} = \frac{-8x}{-8}</math> <math>x=-1</math></p> <p><math>x = \underline{\quad -1 \quad}</math></p>
<p>9. <math>\sqrt{3-2x} = \sqrt{1-3x}</math>  <math>3-2x=1-3x</math>  <math>3+x=1</math>  <math>x=-2</math></p> <p><math>x = \underline{\quad -2 \quad}</math></p>	<p>10. <math>x = \sqrt{20-x}</math>  <math>x^2 = 20-x</math>  <math>x^2 + x - 20 = 0</math>  <math>(x+5)(x-4) = 0</math>  <math>x \neq -5 \quad x=4</math>  <math>x=4</math></p> <p><math>x = \underline{\quad 4 \quad}</math></p>