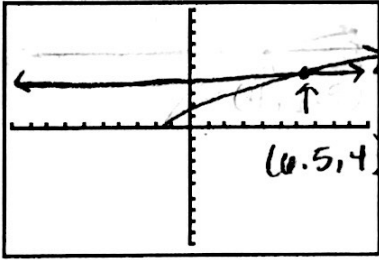
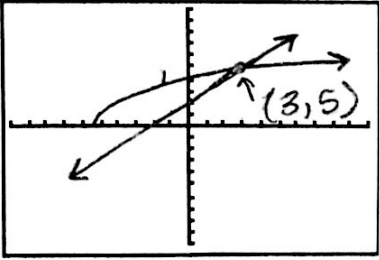


# LAB: Practice Radical Equations

Use the Graphing Calculator

Name Ms. Yelton

<p>1. Solve algebraically:</p> $(4)^2 = (\sqrt{2x+3})^2$ $\begin{array}{r} 16 = 2x + 3 \\ -3 \quad -3 \\ \hline 13 = 2x \\ \frac{13}{2} = \frac{2x}{2} \\ x = 6.5 \end{array}$ <p>Solution: (6.5, 4)</p>	<p>Check(s):</p> $\sqrt{2(6.5)+3} = 4 ?$ $\sqrt{16} = 4$ $4 = 4 \checkmark$	<p>Graph each side of the equation. Label the intersection(s).</p>  <p><math>4 = \sqrt{2x+3}</math>  <math>\downarrow</math>  <math>y_1 = 4</math>  <math>y_2 = \sqrt{2x+3}</math>          Find intersection</p>
<p>2. Solve algebraically:</p> $(x+2)^2 = (\sqrt{3x+16})^2$ $\begin{array}{r} x^2 + 4x + 4 = 3x + 16 \\ -3x \quad -16 \quad -3x \quad -16 \\ \hline x^2 + x - 12 = 0 \\ (x-3)(x+4) = 0 \\ x = 3 \quad x = -4 \\ \quad \quad \uparrow \\ \quad \quad \text{Extraneous} \end{array}$ <p>Solution: (3, 5)</p>	<p>Check(s):</p> $(3)+2 = \sqrt{3(3)+16} ?$ $5 = \sqrt{25}$ $5 = 5 \checkmark$ $(-4)+2 = \sqrt{3(-4)+16}$ $-2 = \sqrt{4}$ $-2 \neq 2 \quad \times$	<p>Graph each side of the equation. Label the intersection(s).</p>  <p><math>x+2 = \sqrt{3x+16}</math>  <math>\downarrow</math>  <math>y_1 = x+2</math>  <math>y_2 = \sqrt{3x+16}</math>          Find intersection</p>

3. Solve algebraically:

$$x - \sqrt{x+4} = 2$$

$$(x-2)^2 = (\sqrt{x+4})^2$$

$$\begin{array}{r} x^2 - 4x + 4 = x + 4 \\ -x \quad -4 \quad -x \quad -4 \\ \hline \end{array}$$

$$x^2 - 5x = 0$$

$$x(x-5) = 0$$

$$\begin{array}{l} x=0 \quad x-5=0 \\ \uparrow \quad \quad x=5 \end{array}$$

Extraneous

Solution: (5, 2)

Check(s):

$$(0) - \sqrt{0+4} = 2 ?$$

$$0 - \sqrt{4} = 2$$

$$0 - 2 = 2$$

$$-2 \neq 2 \quad \times$$

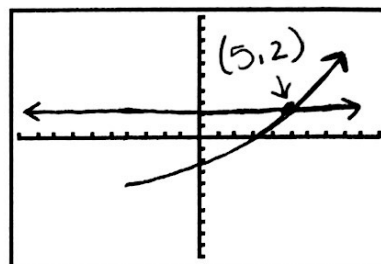
$$(5) - \sqrt{5+4} = 2 ?$$

$$5 - \sqrt{9} = 2$$

$$5 - 3 = 2$$

$$2 = 2 \quad \checkmark$$

Graph each side of the equation. Label the intersection(s).



$$x - \sqrt{x+4} = 2$$

↓

$$y_1 = x - \sqrt{x+4}$$

$$y_2 = 2$$

find intersection

4. Solve algebraically:

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

$$\begin{array}{r} x^2 - 2x + 1 = x + 5 \\ -x \quad -5 \quad -x \quad -5 \\ \hline \end{array}$$

$$x^2 - 3x - 4 = 0$$

$$(x-4)(x+1) = 0$$

$$\begin{array}{l} x=4 \quad x=-1 \\ \quad \quad \uparrow \end{array}$$

Extraneous

Solution: (4, 3)

Check(s):

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

$$3 = \sqrt{9}$$

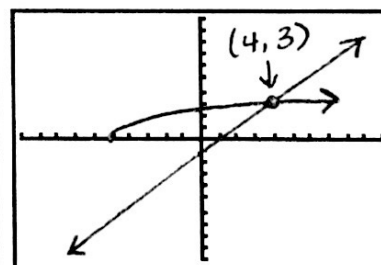
$$3 = 3 \quad \checkmark$$

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

$$-2 = \sqrt{4}$$

$$-2 \neq 2 \quad \times$$

Graph each side of the equation. Label the intersection(s).



$$x - 1 = \sqrt{x+5}$$

↓

$$y_1 = x - 1$$

$$y_2 = \sqrt{x+5}$$

find intersection