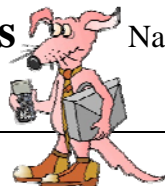


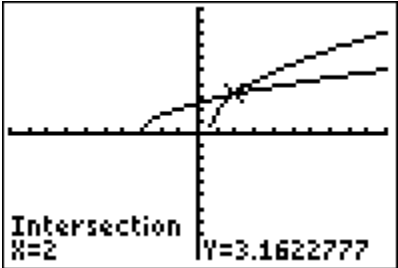
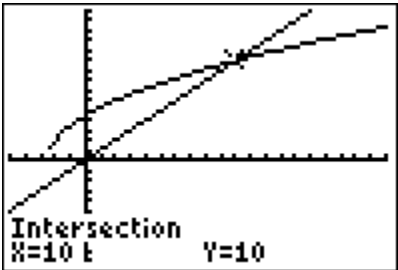
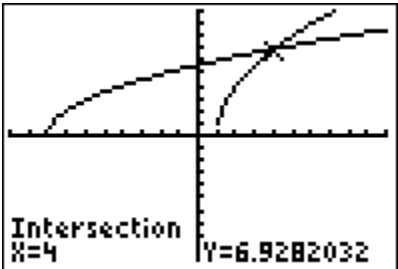
# Working with Radical Equations

Name ANSWERS

Grab your graphing calculator!



<p>1. Solve algebraically:</p> $\sqrt{2x-2} = 8$ $2x - 2 = 64$ $2x = 66$ $x = 33$	<p>Check(s):</p> $\sqrt{2(33)-2} = 8$ $\sqrt{66-2} = 8$ $\sqrt{64} = 8$ $8 = 8 \text{ check}$	<p>Intersection X=33      Y=8</p> <pre> WINDOW Xmin=-1 Xmax=40 Xscl=1 Ymin=-10 Ymax=10 Yscl=1 Xres=1                     </pre>
<p>2. Solve algebraically:</p> $x + 3 = \sqrt{5x + 21}$ $(x + 3)^2 = 5x + 21$ $x^2 + 6x + 9 = 5x + 21$ $x^2 + x - 12 = 0$ $(x + 4)(x - 3) = 0$ $x = -4; \quad x = 3$	<p>Check(s):</p> <p><i>Check -4:</i></p> $-4 + 3 = \sqrt{5(-4) + 21}$ $-1 \neq 1 \text{ does not check}$ <p><i>Check 3:</i></p> $3 + 3 = \sqrt{5(3) + 21}$ $6 = 6 \text{ check}$	<p>Intersection X=3      Y=6</p> <p>Standard window</p>
<p>3. Solve algebraically:</p> $x - \sqrt{2x + 6} = 1$ $x - 1 = \sqrt{2x + 6}$ $(x - 1)^2 = 2x + 6$ $x^2 - 2x + 1 = 2x + 6$ $x^2 - 4x - 5 = 0$ $(x - 5)(x + 1) = 0$ $x = 5; \quad x = -1$	<p>Check(s):</p> <p><i>Check 5:</i></p> $5 - \sqrt{2(5) + 6} = 1$ $5 - 4 = 1 \text{ check}$ <p><i>Check -1:</i></p> $-1 - \sqrt{2(-1) + 6} = 1$ $-1 - 2 \neq 1 \text{ does not check}$	<p>Intersection X=5      Y=1</p> <p>Standard window</p>

<p>4. Solve algebraically:</p> $\sqrt{2x+6} = \sqrt{7x-4}$ $2x+6 = 7x-4$ $10 = 5x$ $2 = x$	<p>Check(s):</p> $\sqrt{2(2)+6} \stackrel{?}{=} \sqrt{7(2)-4}$ $\sqrt{4+6} \stackrel{?}{=} \sqrt{14-4}$ $\sqrt{10} = \sqrt{10} \text{ check}$	 <p>Standard window</p>
<p>5. Solve algebraically:</p> $\sqrt{8x+20} = x$ $8x+20 = x^2$ $0 = x^2 - 8x - 20$ $0 = (x-10)(x+2)$ $x = 10; x = -2$	<p>Check(s):</p> <p><i>Check 10:</i></p> $\sqrt{8(10)+20} \stackrel{?}{=} 10$ $10 = 10 \text{ check}$ <p><i>Check -2:</i></p> $\sqrt{8(-2)+20} \stackrel{?}{=} -2$ $2 \neq -2 \text{ does not check}$	 <p>WINDOW  Xmin=-5  Xmax=20  Xscl=1  Ymin=-10  Ymax=15  Yscl=1  Xres=1</p>
<p>6. Solve algebraically:</p> $4\sqrt{x-1} = 2\sqrt{x+8}$ $16(x-1) = 4(x+8)$ $16x-16 = 4x+32$ $12x = 48$ $x = 4$	<p>Check(s):</p> $4\sqrt{4-1} \stackrel{?}{=} 2\sqrt{4+8}$ $4\sqrt{3} \stackrel{?}{=} 2\sqrt{12}$ $4\sqrt{3} \stackrel{?}{=} 2 \cdot 2\sqrt{3}$ $4\sqrt{3} = 4\sqrt{3} \text{ check}$	 <p>Standard window</p>