BLM 2–5 Section 2.3 Extra Practice

1. a) $x = 3$ **b)** $x = 0$ **c)** no solution **d)** $x = -1$

2. Example: In each case, graph the single function and identify the x-intercepts or graph the set of functions and identify the x-value of the point of intersection.

a) $y = \sqrt{5x^2 + 11} - x - 5$ or $y = \sqrt{5x^2 + 11}$, $y = x + 5$

b) $y = \sqrt{2x^2 - 7} - x - 3$ or $y = \sqrt{2x^2 - 7}$, $y = x + 3$

c) $y = \sqrt{13 - 4x^2} - 2 + x$ or $y = \sqrt{13 - 4x^2}$, $y = 2 - x$

d) $y = \sqrt{-2x^2 + 9} + x - 3$ or $y = \sqrt{-2x^2 + 9}$, $y = 3 - x$

3. a) $x = 4$ and $x = -4$ **b)** $x = -9$ **c)** $x = 2$ and $x = -7$
d) $x = -3$

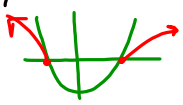
4. a) $x = 4$ **b)** no solution **c)** $x = 6$ **d)** $x = 26$

5. a) $x = 2$ **b)** $x = 12$ **c)** $x = 5$ **d)** $x = 6$

6. a) $x = 4.6$ **b)** $x = 3.6$ **c)** $x = -5.5$ **d)** $x = 9.8$

Sec. 2.3 pt 2 : Graphing radicals to solve
Radicals → parabolas

ex. 1 $\sqrt{3x^2-5} = x+4$ ← linear



algebraically;

$$\left(\sqrt{3x^2-5}\right)^2 = (x+4)^2$$

$$3x^2-5 = x^2+8x+16$$

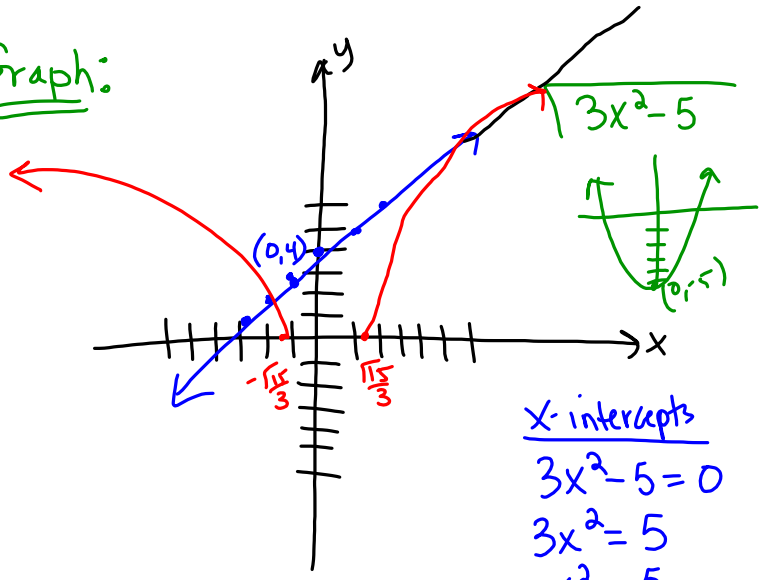
$$2x^2-8x-21=0$$

$$x = \frac{8 \pm \sqrt{8^2-4(2)(-21)}}{2(2)}$$

$$= \frac{8 \pm \sqrt{232}}{4} \to \frac{8+15.2}{4} \approx 5.8 \quad \frac{8-15.2}{4} \approx -1.8$$

Intersection points: $(5.8, 9.8)$ $(-1.8, 2.2)$

Graph:



x-intercepts

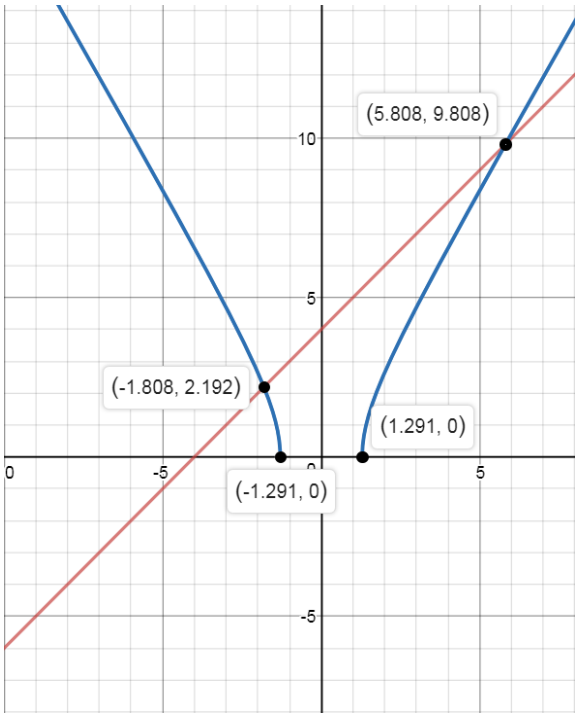
$3x^2-5=0$

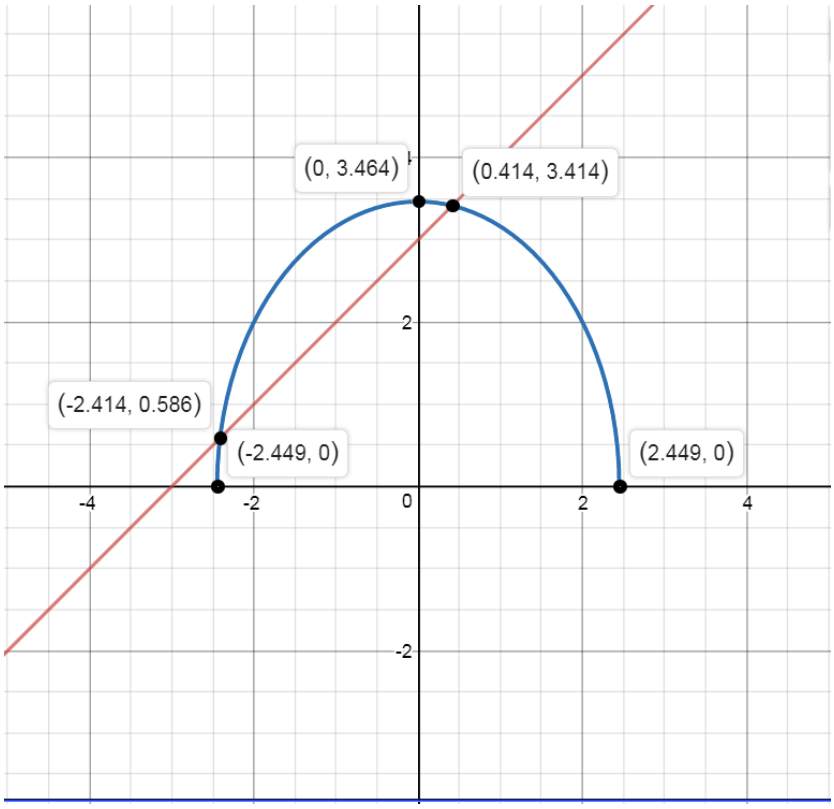
$3x^2=5$

$x^2=\frac{5}{3}$

$x=\pm\sqrt{\frac{5}{3}}$ or $\pm\frac{\sqrt{15}}{3}$

$x \approx 1.3$


(5.808, 9.808)
10
5
(-1.808, 2.192)
(1.291, 0)
0
-5
5
(-1.291, 0)
-5

Your turn: $x+3=\sqrt{12-2x^2}$

or $\sqrt{-2x^2+12}$