

Bell Ringer

Wednesday 11/7

Solve the following equations:

1. $0 = 2(x-4)^2 - 10$

$$\frac{10}{2} = \frac{2(x-4)^2}{2}$$

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

$$x = 4 \pm \sqrt{5}$$

$$x(4x-7) = 0$$

$x = 0$

$$4x - 7 = 0$$

$$\frac{4x}{4} = \frac{7}{4}$$

$x = \frac{7}{4}$

2. $-8 = x^2 - x + 8$

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

$a=1$
 $b=-1$
 $c=8$

$$x = \frac{-(-1) \pm \sqrt{(-1)^2 - 4(1)(8)}}{2(1)}$$

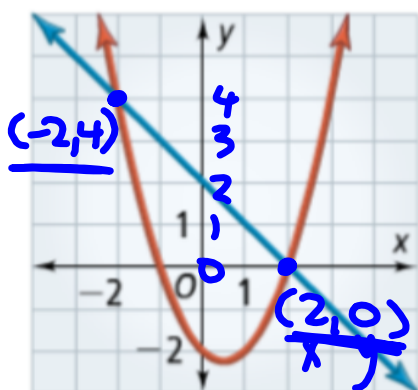
$$x = \frac{1 \pm \sqrt{-31}}{2}$$

4. $-4 = 2x^2 + 17x - 2$

Solving systems...

What are the solutions of the system? Solve by graphing

red $0 = x^2 - x - 2$
blue $0 = -x + 2$



Solve using substitution

$$y = x^2 - x - 2$$

$$y = -2 + 2$$

$$(-2, 4)$$

$$(2, 0)$$

$$x^2 - x - 2 = -x + 2$$

$$x^2 - 4 = 0$$

$$(x+2)(x-2) = 0$$

$$x + \frac{x}{2} = 0 \quad x - \frac{x}{2} = 0$$

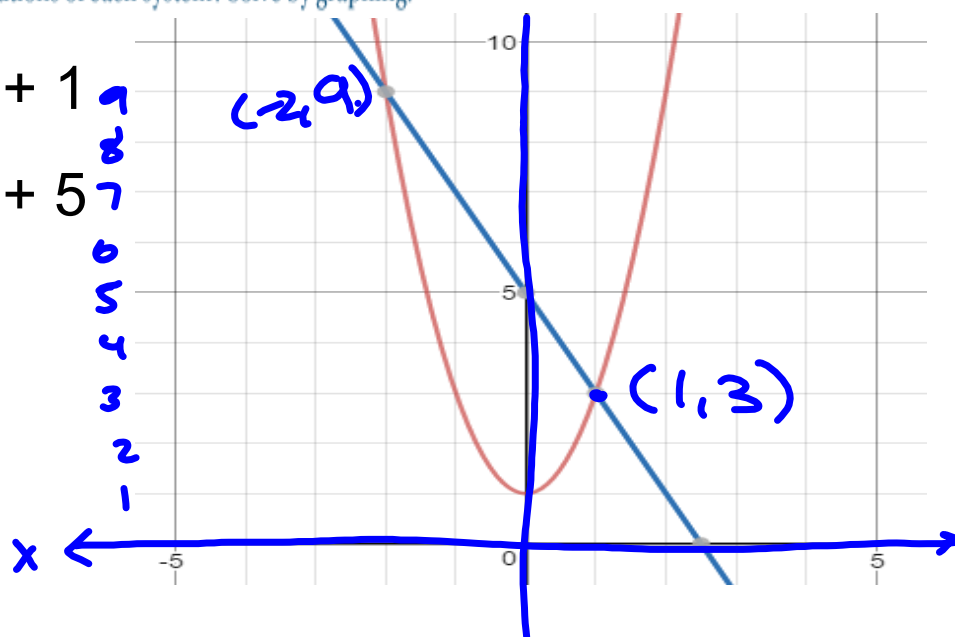
$$x = -2, \quad x = 2$$

∴

Got It? What are the solutions of each system? Solve by graphing.

a. $y = 2x^2 + 1$

$y = -2x + 5$



Solve using substitution

a. $y = 2x^2 + 1$

$y = -2x + 5$

$$2x^2 + 1 = -2x + 5$$

$$\frac{2x^2 + 2x - 4}{2} = 0$$

$$x^2 + x - 2 = 0$$

$$(x + 2)(x - 1) = 0$$

$$x + 2 = 0$$

$$x = -2$$

$$x - 1 = 0$$

$$x = 1$$

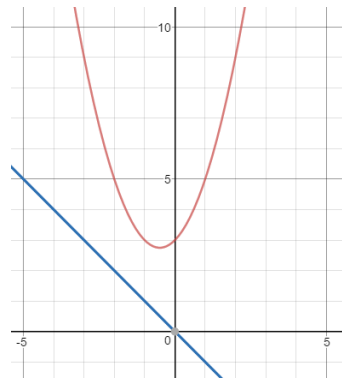
~~$2x^2 - 2x - 1$~~

$(-2, 9)$

$(1, 3)$

Got It? What are the solutions of each system? Solve by graphing.

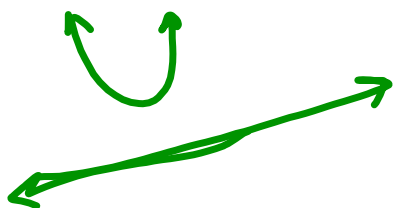
b. $y = x^2 + x + 3$
 $y = -x$



Solve using substitution

b. $y = x^2 + x + 3$

$y = -x$



$$x^2 + x + 3 = -x$$

$$x^2 + 2x + 3 = 0$$

$$\frac{-2 \pm \sqrt{2^2 - 4(1)(3)}}{2(1)}$$

$$\frac{-2 \pm \sqrt{-8}}{2}$$

No sol

Solving systems

Substitution

$$x^2 + 4x + 6 = -3x - 4$$

$$+3x \quad +4 \quad +7x \quad +4$$

$$x^2 + 7x + 10 = 0$$

$$(x + 5)(x + 2) = 0$$

$$x + 5 = 0 \quad x + 2 = 0$$

$$\underline{-5} \quad \underline{-2}$$

$$x = -5 \quad x = -2$$

$$y = x^2 + 4x + 6$$

$$y = -3(-2) - 4$$

$$\begin{array}{r} 2 \times 5 \\ \hline 7 \end{array}$$

$$(-5, 11)$$

$$(-2, 2)$$

Graphing

$$(-2, 2)$$

$$(-5, 11)$$

Pass out ws - do #7 and #11 together

Solving systems

Substitution

7. $y = \frac{3}{2} + \frac{6}{2}(\frac{2}{5})$

Graphing

~~$x + 3 = 2x^2 - x - 3$~~

$y = 2x^2$

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

$(-1, 2)$

~~$(2x^2 + 2x)(-3x - 3) = 0$~~

$(\frac{3}{2}, \frac{9}{2})$

~~$2x(x+1) - 3(x+1) = 0$~~

~~$(x+1)(2x-3) = 0$~~

~~$x+1 = 0$~~

~~$2x-3 = 0$~~

~~$x = -1$~~

~~$x = \frac{3}{2}$~~

Solving systems

Substitution

11. $y = -2x + 2$

$$(-2x+2)^2 = 2x$$

$$(-2x+2)(-2x+2) = 2x$$

$$4x^2 - 4x - 4x + 4 = 2x$$

$$4x^2 - 10x + 4 = 0$$

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

$$(2x^2 - 1x)(-4x + 2) = 0$$

$$x(2x-1) - 2(2x-1) = 0$$

$$(2x-1)(x-2) = 0$$

$$2x-1 = 0$$

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

$$x-2 = 0$$

$$x = 2$$

Graphing

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

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

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

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

$$\left(\frac{1}{2}, 1\right)$$

$$(2, -2)$$

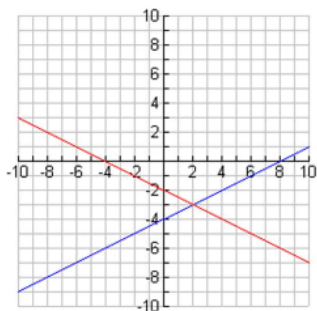
due Friday

Name _____ Hour _____

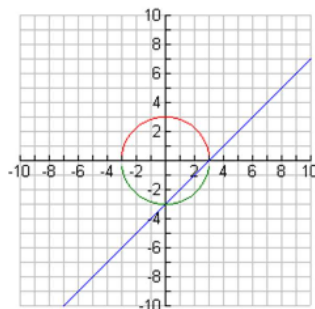
Systems of Equations

Use the graphs to find the solution(s) to each system.

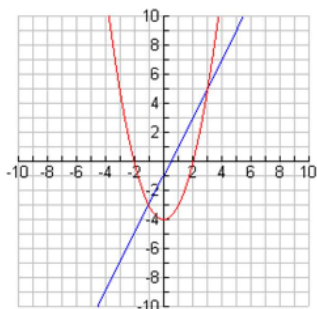
1. $x - 2y = 8$
 $y = \frac{x+4}{-2}$



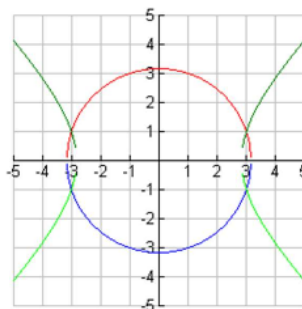
2. $x - y = 3$
 $x^2 + y^2 = 9$



3. $y = 2x - 1$
 $y = x^2 - 4$



4. $x^2 + y^2 = 10$
 $y^2 - x^2 = 8$



Find the exact solution(s) of each system of equations.

5. $x + 2y = 4$
 $2x - 3y = 1$

6. $y = x - 2$
 $y = x^2 - 2$

Find the exact solution(s) of each system of equations.

7. $y = x + 3$
 $y = 2x^2$

8. $y = 3x$
 $x = y^2$

9. $y = x$
 $x^2 + y^2 = 4$

10. $x = -5$
 $x^2 + y^2 = 25$

11. $y = -2x + 2$
 $y^2 = 2x$

12. $x - y + 1 = 0$
 $y^2 = 4x$

13. $y = 2 - x$
 $y = x^2 - 4x + 2$