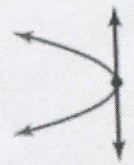


## Linear & Quadratic



No solution

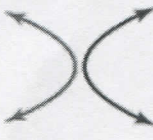


One solution

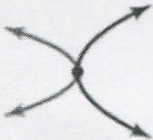


Two solutions

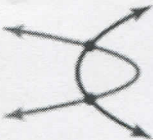
## Two Quadratics



No solution



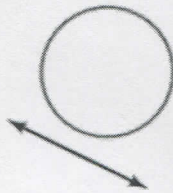
One solution



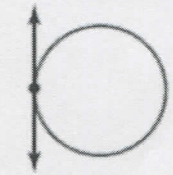
Two solutions

# VISUALS

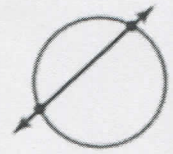
## Circle & Line



No solution



One solution



Two solutions

## CIRCLE:

$$(x - h)^2 + (y - k)^2 = r^2$$

Center: (h, k) and r = radius

Solving Systems Using...

- Substitution: solve for one variable and replace that variable in the other equation
- Elimination: pick a variable to get cancel (same number but opposite signs), then add the equations)
- Graphing: Solve both equations for y, then plug one into y<sub>1</sub> and the other into y<sub>2</sub>. 2<sup>nd</sup> Trace to find their intersections.

TASK 1: Solve the system by graphing.

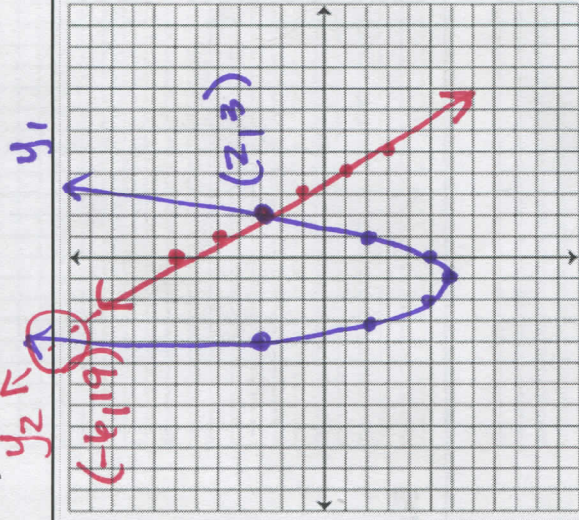
$$x^2 + 2x - y = 5 \quad y_1$$

$$2x + y = 7 \quad y_2$$

$$y_1 = x^2 + 2x - 5$$

$$y_2 = -2x + 7$$

$$\boxed{(-6, 19) \quad (2, 3)}$$



TASK 2: Solve the system by substitution.

$$y_2 = -2x + 7$$

$$\boxed{(-6, 19) \quad (2, 3)}$$

$$x^2 + 2x - (-2x + 7) = 5$$

$$x^2 + 2x + 2x - 7 - 5 = 0$$

$$x^2 + 4x - 12 = 0$$

$$(x + 6)(x - 2) = 0$$

$$x = -6, 2$$

$$y = -2(-6) + 7$$

$$= 12 + 7$$

$$= 19$$

$$y = -2(2) + 7$$

$$= -4 + 7$$

$$= 3$$

TASK 3: Solve the system by elimination.

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

$$2x + y = 7$$

$$\hline x^2 + 4x = 12$$

$$x^2 + 4x - 12 = 0$$

$$(x + 6)(x - 2) = 0$$

$$x = -6, 2$$

$$\boxed{(-6, 19) \quad (2, 3)}$$

$$2(-6) + y = 7$$

$$-12 + y = 7$$

$$\boxed{y = 19}$$

$$2(2) + y = 7$$

$$4 + y = 7$$

$$\boxed{y = 3}$$

TASK 4: Solve the system by substitution or elimination. Then check by graphing.

$$x^2 - 8x + 12 = y$$

$$y = 4x - 24$$

$$(x-6)(x-2)$$

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

$$x_2 + 4x - 15 = 0$$

$$x_2 + 4x = 15$$

$$5x + 4 = 15$$

$$5x = 11$$

$$x = 2.2$$

$$y = 4(6) - 24$$

$$y = 24 - 24$$

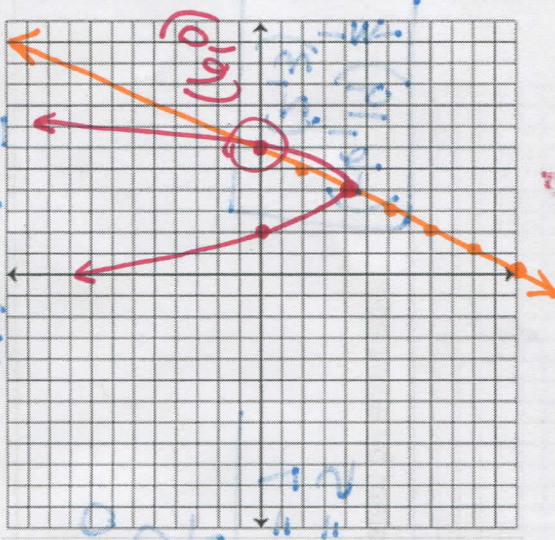
$$= 0$$

$$x^2 - 8x + 12 = 4x - 24$$

$$x^2 - 12x + 36 = 0$$

$$(x-6)^2 = 0 \quad x = 6$$

$(6, 0)$



TASK 5: Solve the system by substitution or elimination. Then check by graphing.

$$x^2 + y^2 = 20$$

$$y = x + 2$$

$(-4, -2)$  and  $(2, 4)$

$$y = -4 + 2$$

$$y = -2$$

$(-4, -2)$

$$y = 2 + 2$$

$$y = 4$$

$(2, 4)$

$$x^2 + (x+2)^2 = 20$$

$$x^2 + x^2 + 4x + 4 = 20$$

$$2x^2 + 4x - 16 = 0$$

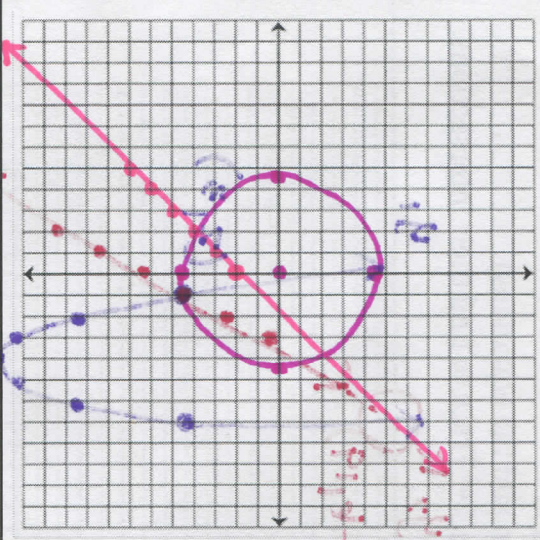
$$\frac{2x^2 + 4x - 16}{2} = 0$$

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

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

$$x = -4, 2$$

$(-4, -2)$  and  $(2, 4)$



Still need help with: