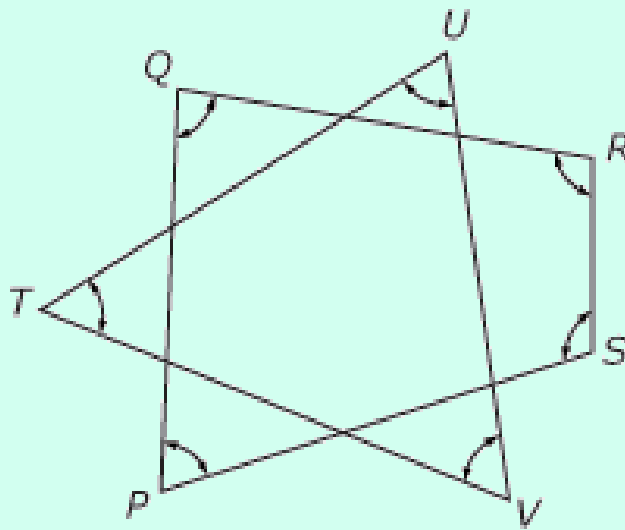


SAT



In the figure above, if PQRS is a quadrilateral and TUV is a triangle, what is the sum of the degree measures of the marked angles?

Chapter 10

Essential Question: How do we solve systems of equations?

Why do we care about this?

You have the option of two DVD rental stores. The first store charges you 1 BD for each DVD you rent. The second store charges you 700 fils for each DVD, but there is a membership fee of 5 BD.

16
Which plan should you choose?

16 BD $A = x$

16.7 BD $B = 0.7x + 5$

$$x = 0.7x + 5$$

$$0.3x = 5$$

$$x = 16.7$$

DVDs

Example 1

$$2(2x - y = 10)$$

$$3x + 2y = 1$$

$$+ 4x - 2y = 20$$

$$2(3) - y = 10$$

$$6 - y = 10$$

$$-y = 4$$

$$y = -4$$

$$7x = 21$$

$$x = 3$$

$$(3, -4)$$

Example 2

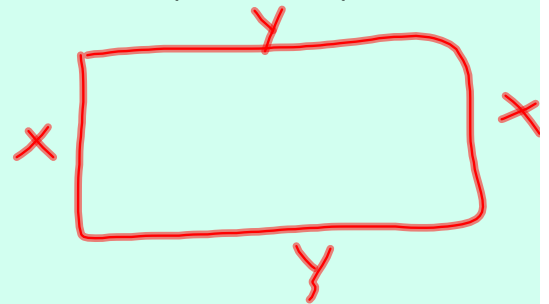
Find the dimensions of a rectangular garden that has a perimeter of 100 ft and an area of 300 ft².

$$\frac{2x + 2y = 100}{2}$$

$$xy = 300$$

$$x + y = 50$$

$$y + 50 - x$$



$$x(50 - x) = 300$$

$$50x - x^2 = 300$$

$$0 = x^2 - 50x + 300$$

Example 3

$$\begin{cases} y = x^3 - 6x \\ y = 3x \end{cases}$$

$$x^3 - 6x = 3x$$

$$x^3 - 9x = 0$$

$$x(x^2 - 9) = 0$$

$$x(x+3)(x-3) = 0$$

$$x = 0, -3, 3$$

$$\begin{cases} (0, 0) \\ (-3, -9) \\ (3, 9) \end{cases}$$

Example 4

$$\begin{aligned} 3(2x + 3y &= 5) \\ 2(-3x + 5y &= 21) \end{aligned}$$

$$\begin{array}{r} 6x + 9y = 15 \\ -6x + 10y = 42 \\ \hline \end{array}$$

$$19y = 57$$

$$y = 3$$

$$\begin{aligned} 2x + 3(3) &= 5 \\ 2x + 9 &= 5 \\ 2x &= -4 \\ x &= -2 \end{aligned}$$

$$(-2, 3)$$

Example 5

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

$$2x - 6y = 4$$

$$\underline{-2x + 6y = 4}$$

$$0 \neq 0$$

~~Check:~~

NO SOLUTION

$$y = \frac{-2-x}{-3}$$

$$y = \frac{4-2x}{-6}$$



parallel

Example 6

$$3(4x - 5y = 2)$$

$$-12x + 15y = -6$$

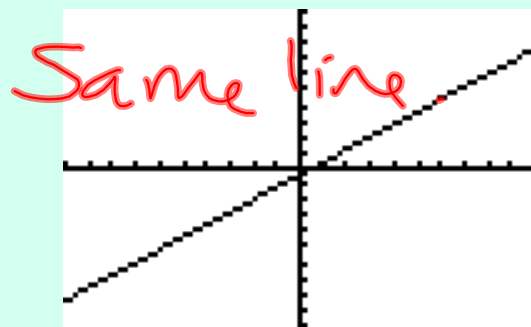
$$\underline{12x - 15y = 6}$$

$$0 = 0$$

* Inf. many solutions

$$y = \frac{2 - 4x}{-5}$$

$$y = \frac{-6 + 12x}{15}$$

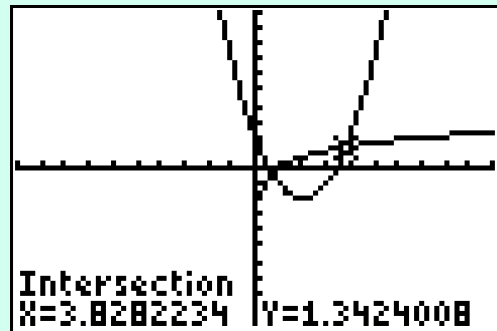
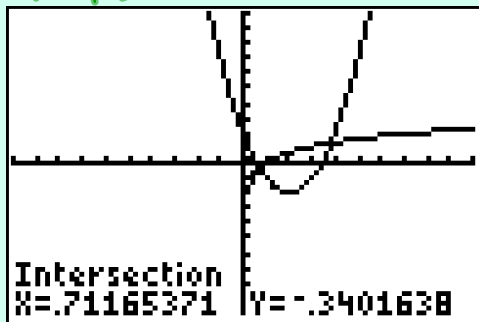


Example

$$y = \ln x$$

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

$$y = \ln x$$



$$(0.712, -0.340) \quad (3.83, 1.34)$$

Application

Homework Assignment:
page 640-642
(7-10, 11-21 odd, 57, 58, 59, 61)