

21. Find three consecutive even integers such that twice the sum of the first and third integers is twenty more than the second integer. $x, x+2, x+4$

$$2(x + x + 4) = 20 + x + 2$$

$$2(2x + 4) = 22 + x$$

$$4x + 8 = 22 + x$$

$$3x = 14$$

$$x = \frac{14}{3}$$

no solution

22. Fifty liters of pure maple syrup that costs \$10 per liter are mixed with imitation maple syrup that costs \$4 per liter. How much imitation maple syrup is needed to make a mixture that costs \$5 per liter?

	cost per liter	quantity	total cost
pure	\$10	50	10(50)
imitation	\$4	x	4x
mixture	\$5	x+50	5(x+50)

$$10(50) + 4x = 5(x + 50)$$

$$500 + 4x = 5x + 250$$

~~250 = x~~ $250 = x$

250 L of imitation syrup

23. Two airplanes start from the same point and fly in opposite directions. The first plane is flying 50 mph slower than the second plane. In 4 h, the planes are 1800 mi apart. Find the rate of each plane.

	rate	time	distance
plane 1	$x-50$	4	$4(x-50)$
plane 2	x	4	$4x$

$$4(x-50) + 4x = 1800$$

$$4x - 200 + 4x = 1800$$

$$8x = 2000$$

$$x = 250$$

plane 2: 250 mi/h
plane 1: 200 mi/h

24. How many quarts of water must be added to 5 qt of an 80% antifreeze solution to make a 50% antifreeze solution?

	% concentration	quantity of solution	total amount of antifreeze
80% anti.	0.8	5	$0.8(5)$
water	0	x	0
50% anti	0.5	$5+x$	$0.5(5+x)$

$$0.8(5) + 0 = 0.5(5+x)$$

$$4 = 2.5 + 0.5x$$

$$1.5 = 0.5x$$

$$3 = x$$

3 qts of water

<u>2.4</u>			
9.	principal (initial investment)	% rate	interest earned
5.5%	6000	0.055	$0.055(6000)$
10%	X	0.1	$0.1X$

total annual interest is 7% of investment
 $0.055(6000) + 0.1X = 0.07(6000 + X)$

2.4

12.

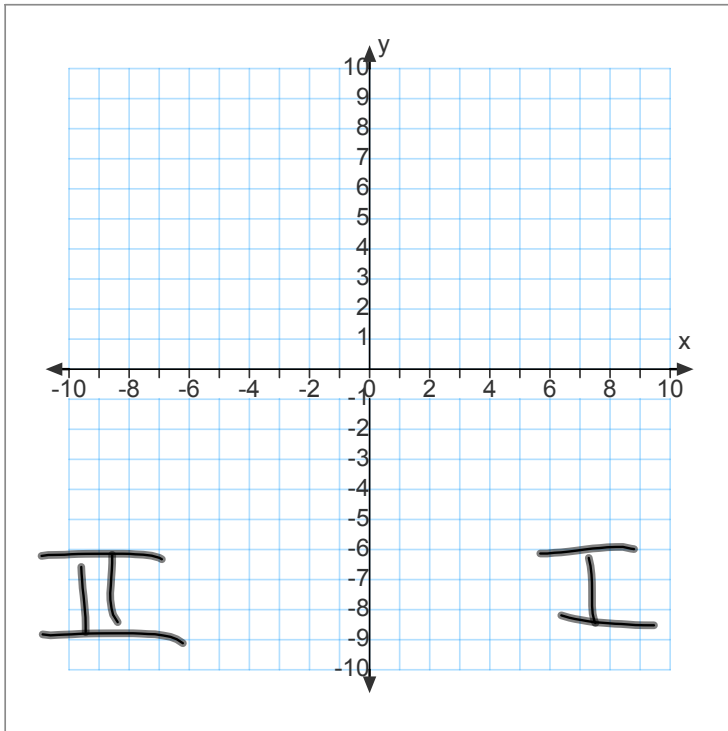
	principal	interest rate	interest earned
4%	$.25x$	$.04$	$.04(.25x)$
6%	$.4x$	$.06$	$.06(.4x)$
9%	$.35x$	$.09$	$.09(.35x)$

$6550 = .04(.25x) + .06(.4x) + .09(.35x)$

HW to turn in

Chapter 2 Review pp 112-113

1-18, 27-34



ordinate

coordinate plane

coordinate axes

quadrants

(x, y) :

coordinate pair

III

IV

(abscissa, ordinate)

A coordinate pair (x, y) is a particular solution to an equation in two variables.

$$y = 2x^2 - 3$$

$$(-2, 5)$$

$$(-1, -1)$$

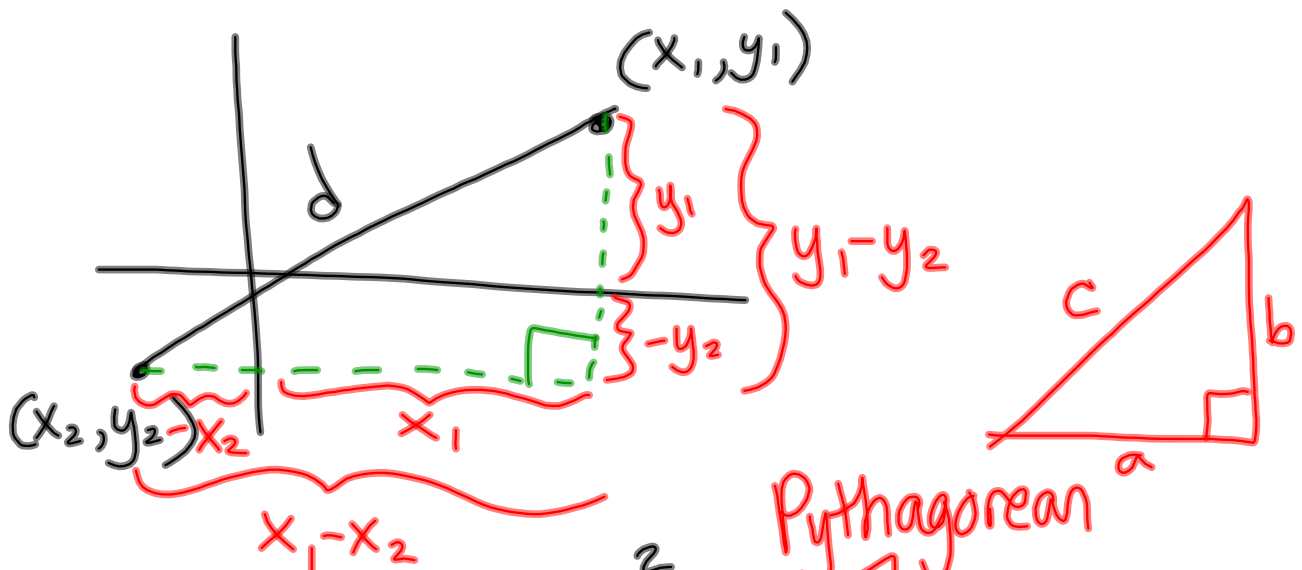
$$(0, -3)$$

$$(1, -1)$$

$$(2, 5)$$

$$\begin{aligned} 2(-2)^2 - 3 &= 2(4) - 3 \\ &= 8 - 3 \\ &= 5 \end{aligned}$$

Distance Between 2 Points



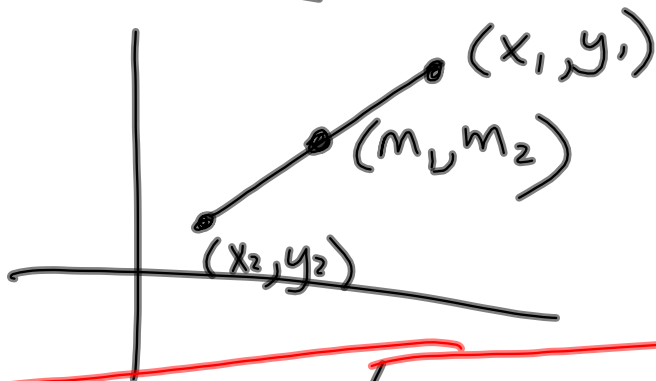
$$(x_1 - x_2)^2 + (y_1 - y_2)^2 = d^2$$

Pythagorean Theorem
 $a^2 + b^2 = c^2$

$$d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} \star$$

distance between (x_1, y_1) & (x_2, y_2)

Midpoint



Midpoint: $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$

Given the Points:

$$\begin{matrix} (-2, 3) & \& & (1, 7) \\ x_1, y_1 & & & x_2, y_2 \end{matrix}$$

Distance:

$$d = \sqrt{(-2-1)^2 + (3-7)^2} = \sqrt{9 + 16} = \sqrt{25} = 5$$

Midpoint:

$$\left(\frac{-2+1}{2}, \frac{3+7}{2} \right) = \left(-\frac{1}{2}, 5 \right)$$

3.1 HW
3-29