

21. Find three consecutive even integers such that twice the sum of the first and third integers is twenty more than the second integer.

$$x, x+2, x+4$$

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

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

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

$$3x = 14$$

$$x = 14/3$$

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?

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

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

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

$$x = 250 \text{ L of imitation syrup}$$

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
1	$x-50$	4	$4(x-50)$
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?

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

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

$$4 = 0.5x + 2.5$$


$$1.5 = 0.5x$$

$$3 = x$$

3q of water

2.5

$$25. \quad 2(1-3x) - 4 > 10 + 3(1-x)$$

$$2 - 6x - 4 > 10 + 3 - 3x$$


$$2 - 4 - 10 - 3 > -3x + 6x$$

$$-15 > 3x$$

$$-5 > x$$

$$x < -5$$

$$(-\infty, -5)$$

2.2

13.

	#	value	total value
8¢	$2x$	0.08	$2x(0.08)$
11¢	$x+3$	0.11	$0.11(x+3)$
18¢	$x$	0.18	$0.18x$

$$3.48 = 2x(0.08) + 0.11(x+3) + 0.18x$$

2.4

8.	principal	interest rate	interest earned
4%	6000	0.04	$0.04(6000)$
6.5%	X	0.065	$0.065X$

$$\underbrace{0.04(6000) + 0.065X}_{\text{total interest}} = 0.05 \underbrace{(6000 + X)}_{\text{total investment}}$$

2.4

19.

	quantity	2 <sup>o</sup> conc.	total amount
12 <sup>o</sup>	X	0.12	0.12X
30 <sup>o</sup>	400	0.3	0.3(400)
20 <sup>o</sup>	400+X	0.2	0.2(400+X)

$$0.12X + 0.3(400) = 0.2(400 + X)$$

2.3

22.

	rate	time	distance
hiker 1	$x$	2	$2x$
hiker 2	$x+0.5$	2	$2(x+0.5)$

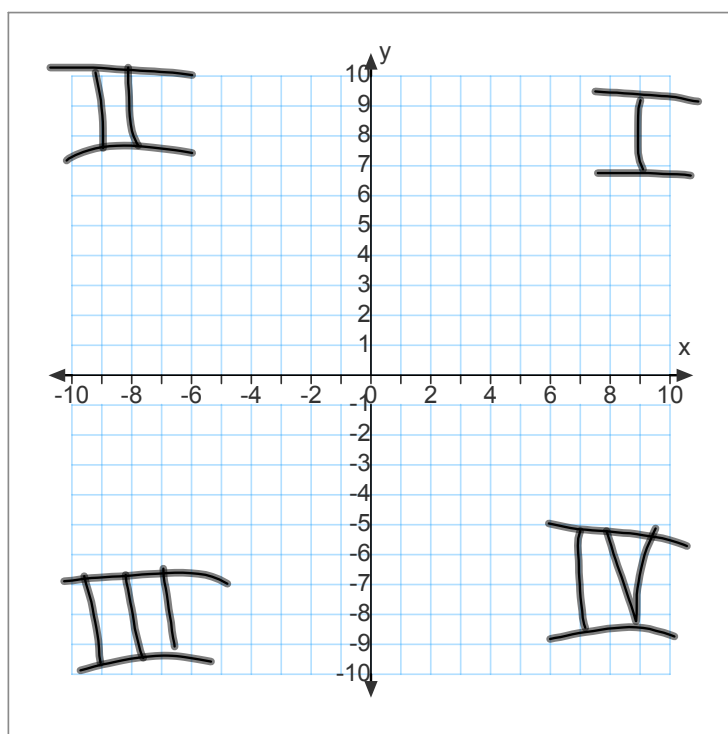
$$2x + 2(x+0.5) = 13$$

Hw to turn in!

Ch 2 Review pp 12-113  
1-18 , 27-34



# 3.1 Intro to the Rectangular Coordinate System



coordinate  
plane  
x & y axes  
quadrants

coordinate pairs  $(x, y)$   
(abscissa, ordinate)

each  $(x, y)$  represents a particular solution of an equation in two variables.

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

$$(-2, 5)$$

$$(-1, -1)$$

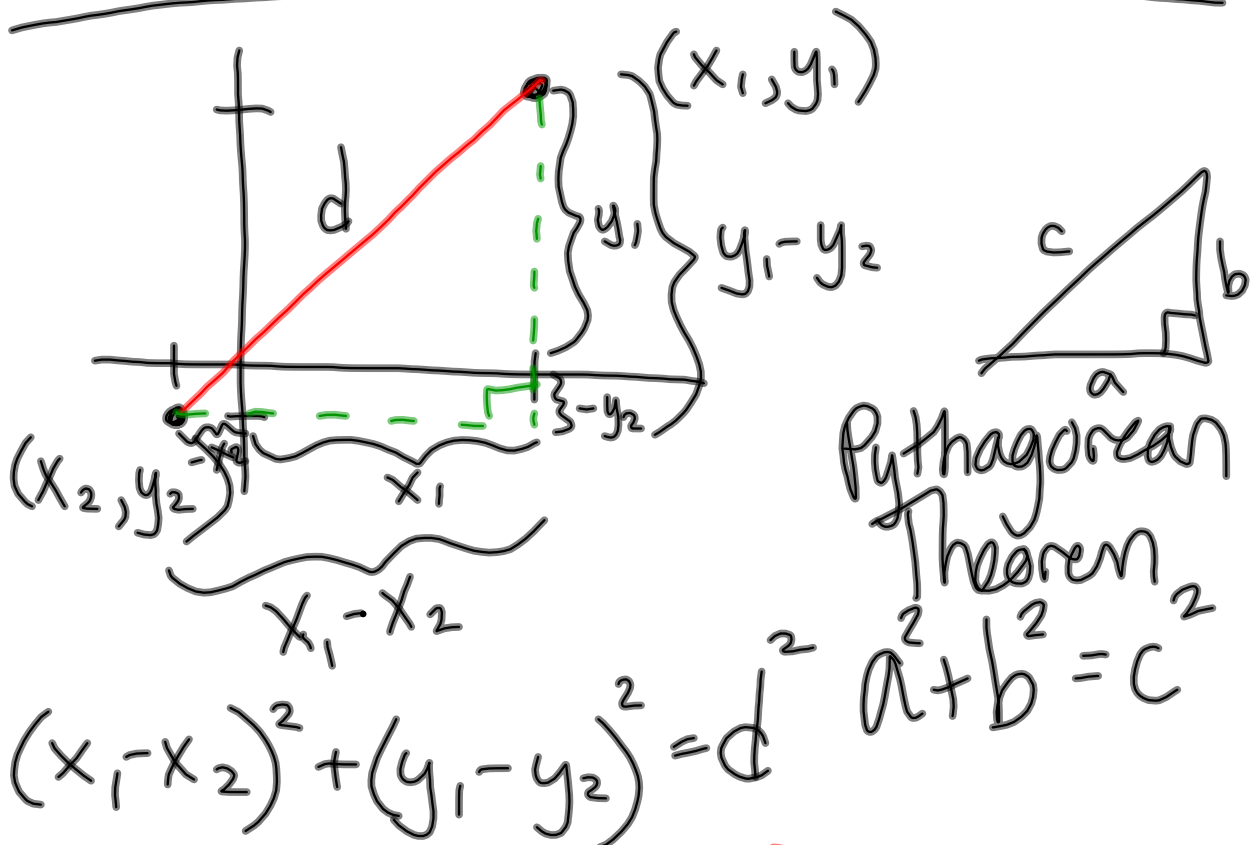
$$(0, -3)$$

$$(1, -1)$$

$$(2, 5)$$

$$2(-2)^2 - 3 = 2(4) - 3 \\ = 8 - 3$$

# Distance Between 2 Points



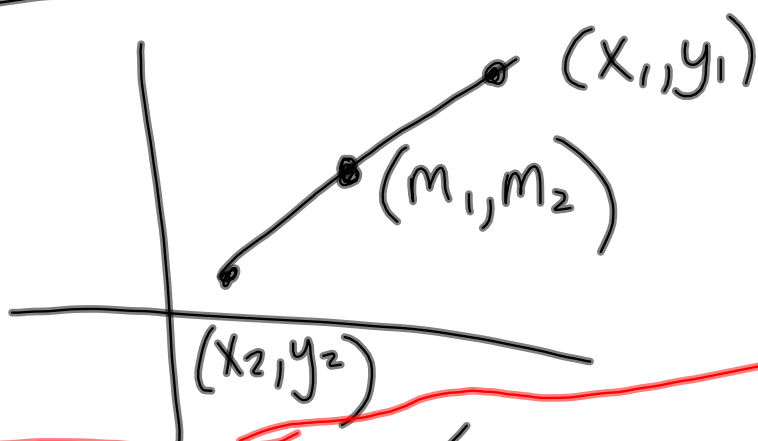
$$(x_1 - x_2)^2 + (y_1 - y_2)^2 = d^2$$

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

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

## Midpoint between 2 Points

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

Given the points:

$$\therefore (2, -5) \text{ \& } (-1, 4)$$

$x_1, y_1$                        $x_2, y_2$

Distance:

$$d = \sqrt{(2 - (-1))^2 + (-5 - 4)^2}$$

$$= \sqrt{9 + 81} = \sqrt{90} = \boxed{3\sqrt{10}}$$

Midpoint:

$$\left( \frac{2 + (-1)}{2}, \frac{-5 + 4}{2} \right)$$

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

$$\frac{31}{\# 3-29}$$