

KEY

Identifying Functions: Ordered Pairs, Mapping Diagrams and Tables

Algebra

Name _____ Period _____

Given values in one of the columns, fill in the other 4

Ordered Pairs	Mapping	Table	Graph	Function? (Y or N)												
(-4, 1), (-3, 2), (-2, 3) (-1, 4), (0, 5)		<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr><td>-4</td><td>1</td></tr> <tr><td>-3</td><td>2</td></tr> <tr><td>-2</td><td>3</td></tr> <tr><td>-1</td><td>4</td></tr> <tr><td>0</td><td>5</td></tr> </tbody> </table>	x	y	-4	1	-3	2	-2	3	-1	4	0	5		Y
x	y															
-4	1															
-3	2															
-2	3															
-1	4															
0	5															
(1, -3) (2, -3) (3, -2) (4, -2)		<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr><td>1</td><td>-3</td></tr> <tr><td>2</td><td>-3</td></tr> <tr><td>3</td><td>-2</td></tr> <tr><td>4</td><td>-2</td></tr> </tbody> </table>	x	y	1	-3	2	-3	3	-2	4	-2		Y		
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2	-3															
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(-1, 4) (0, 2) (-3, 3) (2, -1) (-1, -3)		<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr><td>-1</td><td>4</td></tr> <tr><td>0</td><td>2</td></tr> <tr><td>-3</td><td>3</td></tr> <tr><td>2</td><td>-1</td></tr> <tr><td>-1</td><td>-3</td></tr> </tbody> </table>	x	y	-1	4	0	2	-3	3	2	-1	-1	-3		N
x	y															
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4	2															

1-71 cont'd

$$b) f(x) + g(x) = x^2 - 2x + 6 + 2x + 11$$
$$= x^2 + 17$$

$$c) f(x) - g(x) = \frac{x^2 - 2x + 6}{x^2 - 4x - 5} - (2x + 11)$$

1.2.1 cont'd (Thurs 9/4) 1-72 \rightarrow 1-77

$$1-72) a) y = \frac{3}{5}x + 1$$
$$\frac{5}{3}(y-1) = \frac{3}{5}x \left(\frac{5}{3}\right)$$

$$\frac{5}{3}(y-1) = x$$

$$b) 3x + 2y = 6$$
$$\quad \quad -2y \quad -2y$$

$$\frac{3x}{3} = \frac{-2y}{3} + \frac{6}{3}$$

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

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

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

$$d) y = x^2 - 100$$
$$\quad +100 \quad +100$$

$$\sqrt{x^2} = \sqrt{y + 100}$$

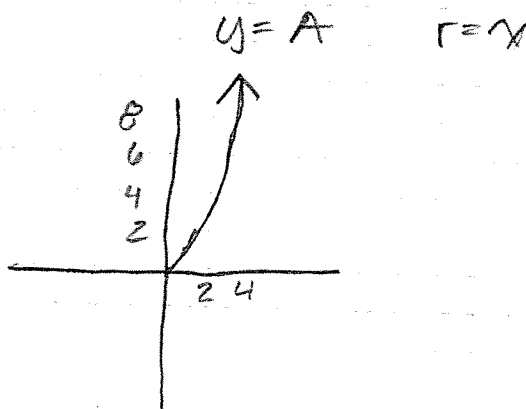
$$x = \pm \sqrt{y + 100}$$

1-73)

$$A = \pi r^2$$

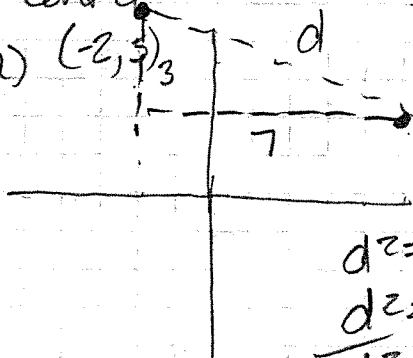
$$y = \pi x^2$$

x	y
0	0
1	π
2	4π
3	9π
4	16π



1.2.7 Centroid

1-74) a) $(-2, 3)$ $(5, 2)$



$$d^2 = 7^2 + 3^2$$

$$d^2 = 49 + 9$$

$$\sqrt{d^2} = \sqrt{58} \quad d = 7.62 \text{ units}$$

$$b) m = \frac{2 - 3}{5 - (-2)} = \boxed{\frac{-3}{7}}$$

1-75) $-1 = x^2 + 2x + 1$
 $0 = x^2 + 2x$

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

$$\boxed{\begin{array}{c} x=0 \\ \text{or} \\ x=-2 \end{array}}$$

1-76) a) When $x=0$ you find the y-int

$$y = 3(0) + 6 \quad (0, 6)$$

$$b) \begin{array}{l} 0 = 5y - 10 \\ +10 \quad +10 \end{array} \quad (0, 2)$$

$$\frac{10}{5} = \frac{5y}{5} \quad y = 2$$

$$c) y = (0)^2 \quad y = 0 \quad (0, 0)$$

$$d) y = 2(0)^2 - 4 \quad (0, -4)$$

$$y = -4$$

$$e) \begin{array}{l} y = (0-5)^2 \\ y = 25 \end{array} \quad (0, 25)$$

$$f) y = 3(0)^3 - 2(0)^2 + 13 \quad (0, 13)$$

$$y = 13$$

1-77) cannot subtract 4 from 10

$$\begin{array}{r} 3x+2 = 10 - 4(x-1) \\ 3x+2 = 10 - 4x+4 \\ +4x \quad \quad +4x \end{array}$$

$$\begin{array}{r} 7x+2 = 14 \\ -2 \quad -2 \end{array}$$

$$\frac{7x}{7} = \frac{12}{7}$$

$$\boxed{x = \frac{12}{7}}$$

Lesson 1.2.2 Fri 9/5 (1-84 \rightarrow 1-90)

1-84) $2x^2 - 3x + 4 = x^2 + 5x - 3$

$$\begin{array}{r} x^2 - 3x + 4 = 5x - 3 \\ -5x \quad \quad -5x \end{array}$$

$$\begin{array}{r} x^2 - 8x + 4 = -3 \\ +3 \quad +3 \end{array}$$

$$x^2 - 8x + 7$$

$$(x-7)(x-1) = 0$$

$x=7$ and $x=1$

$$\boxed{(7, 81)}$$

$$(-7)^2 + 5(-7) - 3$$

$$49 + 35 - 3 = 81$$

$$(1)^2 + 5(1) - 3$$

$$1 + 5 - 3 = 3$$

$$\boxed{(1, 3)}$$

1-85) a) $-2(x+4) = 35 - (7-4x)$

$$\begin{array}{r} -2x - 8 = 35 - 7 + 4x \\ -4x \quad \quad -4x \end{array}$$

$$\begin{array}{r} -6x - 8 = 28 \\ +8 \quad \quad +8 \end{array}$$

$$\frac{-6x}{-6} = \frac{36}{-6}$$

$$\boxed{x = -6}$$

b) ~~$\frac{x-4}{1} = \frac{8-3x}{5}$~~

$$\frac{26x}{26} = \frac{16}{26}$$

$$\boxed{x = \frac{38}{13}}$$

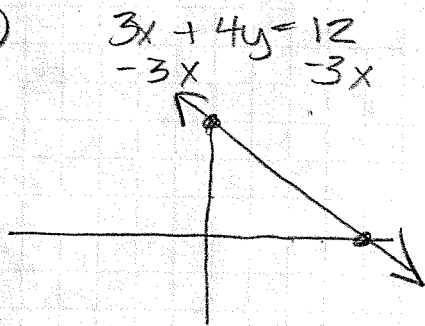
$$\begin{array}{r} 5(x-4) = 7(8-3x) \\ 5x - 20 = 56 - 21x \\ +21x \quad \quad +21x \end{array}$$

$$\begin{array}{r} 26x - 20 = 56 \\ +20 \quad +20 \end{array}$$

- 1-97) a) Quadratic Formula
 b) Law of Sines
 c) Pythagorean Thm
 d) Law of Cosines

Tue/Wed Lesson 1.2.3 9/9 and 9/10 (104-110)

1-104)



$$\frac{4y}{4} = \frac{-3x + 12}{4}$$

$$b = 3$$

$$y = -\frac{3}{4}x + 3$$

$$m = -\frac{3}{4}$$

$$x \text{ int. } (4, 0)$$

$$y \text{ int. } (0, 3)$$

1-105)

$$m = \frac{-3 - 0}{0 - 2} = \frac{-3}{-2} = \frac{3}{2}$$

$$y - 0 = \frac{3}{2}(x - 2)$$

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

1-106) a) $x^2 + 3x - 3 = 0$

Quad Formula

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

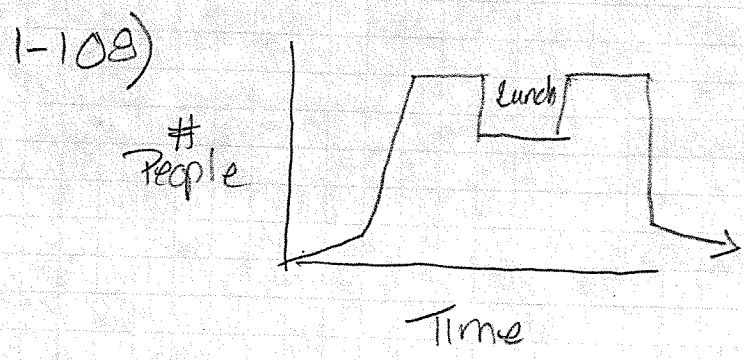
$$= \frac{3 \pm \sqrt{9 + 12}}{2} = \frac{3 \pm \sqrt{21}}{2} \approx -3.79 \text{ and } 0.79$$

b) $3x^2 - 7x - 12 = 0$

$$\frac{7 \pm \sqrt{(-7)^2 - 4(3)(-12)}}{2(3)} = \frac{7 \pm \sqrt{49 + 144}}{6}$$

$$\frac{7 \pm \sqrt{193}}{6} \approx 3.48 \text{ and } -1.15$$

1-107) $\frac{17}{3} =$ need @ least 6 sets
 $6(2) = \$12.00$



1-109) a) D: $-3 \leq x < 3$
R: $-2, 1, 3$

b) D: $x=2$
R: all real #'s

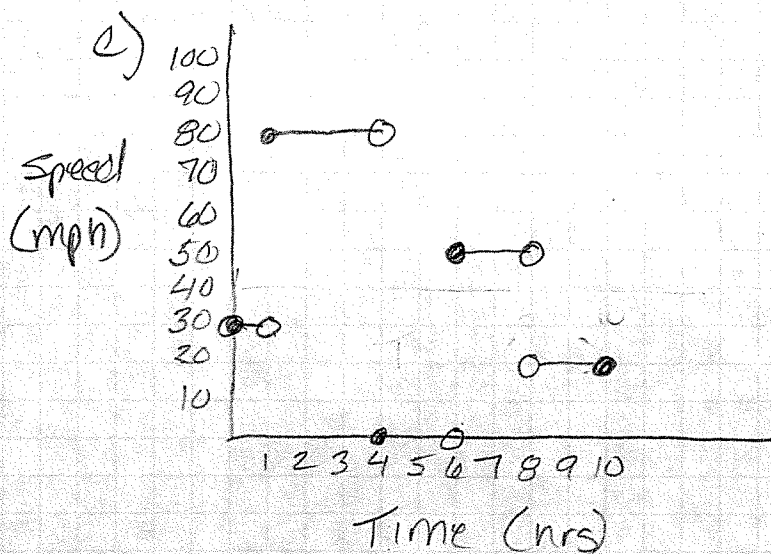
c) D: $x \geq -2$
R: all real #'s

1-110) a) 1, 2, 3, 4, 5 or 6

b) $\frac{1}{6}$

c) $\frac{4}{6} = \frac{2}{3}$

- 1-112 a) A portion of the trip at a specific speed
 b) About 400 miles because it is the total distance on the trip



A speed of about 30 mph for 1 hr then 80 mph for the next 3 hrs, 0 mph for 2 hrs, 40 mph for 2 hrs then 20 mph the last 2 hrs. The step graph shows instantaneous change of speed which actually is not possible

1-113) a) $10 - 2(2x + 1) = 4(x - 2)$
 $10 - 4x - 2 = 4x - 8$
 $8 - 4x = 4x - 8$
 -8
 $-4x = 4x - 16$
 $-4x - 4x$
 $\frac{-8x}{-8} = \frac{-16}{-8}$

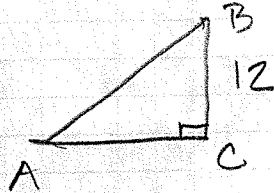
$$\boxed{x = 2}$$

b) $5 - (2x - 3) = -8 + 2x$
 $5 - 2x + 3 = -8 + 2x$
 $8 - 2x = -8 + 2x$
 -8
 $-2x = -16 + 2x$
 $-2x - 2x$

$$\frac{-4x}{-4} = \frac{-16}{-4}$$

$$\boxed{x = 4}$$

1-114)



$$A = 60$$

$$A = \frac{bh}{2}$$

$$\frac{60}{6} = \frac{AC(12)}{2} = \frac{AC(6)}{6}$$

$$AC = 10$$

$$\tan B = \frac{10}{12}$$

$$\tan^{-1} \frac{10}{12} = \angle B = 39.8^\circ$$

$$AB^2 = 10^2 + 12^2$$

$$AB^2 = 100 + 144$$

$$\sqrt{AB^2} = \sqrt{244}$$

$$AB = 15.6 \text{ cm}$$

1-115)



short leg = x

long leg = 3x + 3

$$25^2 = \frac{x(3x+3)}{2}$$

$$1250 = 3x^2 + 3x$$

$$0 = 3x^2 + 3x - 1250$$

$$3(x^2 + x - 56)$$

$$3(x-7)(x+8)$$

$$x = 7$$

$$x = -8$$

long leg =

$$3(7) + 3 = 24$$

$$\text{hyp}^2 = 7^2 + 24^2$$

$$49 + 576$$

$$P = 7 + 24 + 25$$

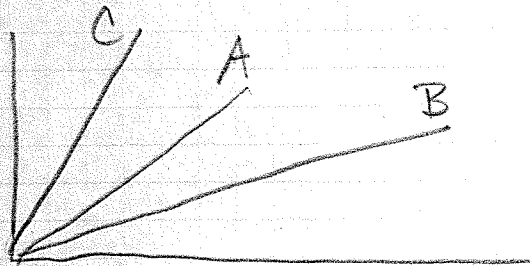
$$P = 56 \text{ inches}$$

$$\sqrt{\text{hyp}^2} = \sqrt{625}$$

$$\text{hyp} = 25$$

1-116)

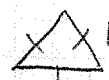
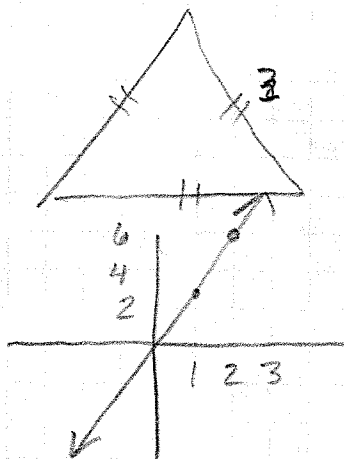
ht of liquid



Volume

The independent variable is the volume and the dependent variable is the height.

1-117)



x=l	y=P
1	3
2	6
3	9

$$y = 3x$$

1-118) a) $\frac{1}{26}$

26 letters in the alphabet

b) $\frac{1}{25}$

only 25 letters left

Chapter 1 Closure (Thurs 9/11) 1-119 \rightarrow 1-129

1-119) $f(x) = \sqrt{x+4}$ $g(x) = x^2 - x$

a) $f(5) = \sqrt{5+4} = \sqrt{9} = \pm 3$

b) $g(-1) = (-1)^2 - (-1) = 1 + 1 = 2$

c) $(10)^2 = (\sqrt{x+4})^2$
 $100 = x+4$ $x = 96$

d) $6 = x^2 - x$
 $0 = x^2 - x - 6$
 $0 = (x-3)(x+2)$

$$x-3=0$$

$$\boxed{x=3}$$

$$x+2=0$$

$$\boxed{x=-2}$$

1-120) a) $x < 6$ (Domain)
 $y \leq 6$ (Range)

b) Domain: All real #'s
 Range: $-3 \leq y \leq 3$