Algebra 1 Semester 1 Review

Name: __KEY__

Chapter 1

Write an algebraic expression for each verbal expression.

The sum of cube of a number and –14	The product of 12 and a number squared
$n^3 - 14$	$12n^2$
The difference between a number and 2 divided by 3	The quotient of a number and –1 added to 5
$\dfrac{n-2}{3}$	$\dfrac{n}{-1} + 5$

Write a verbal expression for each algebraic expression

$8n^3 + 5$	$\dfrac{3+x}{5-2n}$
8 times a number cubed added to five	three plus x divided by the difference of 5 and 2 times n.

Simplify each expression

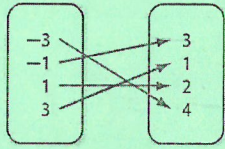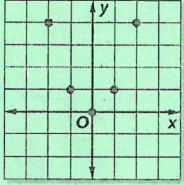| $15w - 7w + 14w^4$	$5(y - 7) + 2y$
$14w^4 + 8w$	$5y - 35 + 2y$ $7y - 35$
$32 + 7 - 2 \cdot 5$ $32 + 7 - 10$ 29	$12x + 5x(3 + 4) + 12$ $12x + 15x + 20x + 12$ $47x + 12$

Evaluate each expression if $a = -1, b = 3,$ and $c = -2$

$a^2 + 5c - 3b$	$4a(b + 5c)$	$b^2 + c^2 - 4a$
$(-1)^2 + 5(-2) - 3(3)$ $1 + -10 - 9$ -18	$4(-1)(3 + 5(-2))$ $-4(3 - 10)$ $-4(-7) = 28$	$3^2 - 2^2 - 4(-1)$ $9 + 4 + 4$ 17

Identify the independent and dependent quantities in the problems below.

The stopping distance of a car and the speed of the car.	The bank account earns 3% interest every month.	Johnathon scores 3 points every two minutes he is in the basketball game.
I: Speed D: Stopping distance	I: time (months) D: Amount of account	I: time (minutes) D: points scored

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Determine whether the relation is a function or not _and_ list the domain and range.

F D: -3, -1, 1, 3 R: 3, 1, 2, 4	F D: -2, -1, 0, 1, 2 R: 4, 1, 0	{(8, 4), (6, 3), (4, 2), (2, 1), (6, 0)} NF D: 8, 6, 4, 2 R: 4, 3, 2, 1, 0

If $f(x) = 2x + 4$ and $g(x) = x^2 + 3$, find each value

$f(-3) = 2(-3) + 4$	$f(m+2)$	$g(-4)$	$g(3p)$	$g(0)$
$f(-3) = -6 + 4$ $f(-3) = -2$	$2(m+2) + 4$ $2m + 4 + 4$ $2m + 8$	$(-4)^2 + 3$ $16 + 3$ 19	$(3p)^2 + 3$ $9p^2 + 3$	$0^2 + 3$ 3

Chapter 2

Solve the multi-step equations (hint: use DCAM)

$30 = -5(6b + 6)$	$-11 - 5a = 6(5a + 4)$	$-8(8x - 6) = -6x - 22$
$30 = -30b - 30$ -30 $+30$ $+30$ $\dfrac{60}{-30} = \dfrac{-30b}{-30}$ $b = -2$	$-11 - 5a = 30a + 24$ $-24 + 5a \quad +5a \quad -24$ $\dfrac{-35}{35} = \dfrac{35a}{35}$ $a = -1$	$-64x + 48 = -6x - 22$ $+6x \qquad\quad +6x$ $-58x + 48 = -22$ $\quad\;\; -48 \;\; -48$ $\dfrac{-58x}{-58} = \dfrac{-70}{-58}$

Evaluate the following expressions

$\lvert 3f - 2g \rvert + 2$ if $f = -2$ and $g = 1$	$\lvert 2d - 3n \rvert - 4$ if $n = 2$ and $d = 3$.	$2\lvert m - 3x \rvert - p$ if $m = -1$, $x = 2$, and $p = 4$
$\lvert 3(-2) - 2(1) \rvert + 2$ $\lvert -6 - 2 \rvert + 2$ $\lvert -8 \rvert + 2$ $8 + 2 \quad \boxed{10}$	$\lvert 2(3) - 3(2) \rvert - 4$ $\lvert 6 - 6 \rvert - 4$ $\boxed{-4}$	$2\lvert -1 - 3(2) \rvert - 4$ $2\lvert -1 - 6 \rvert - 4$ $2\lvert -7 \rvert - 4$ $14 - 4 \quad \boxed{10}$

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Solve each equation

$|x - 6| = 11$	$|5x| + 5 = 45$	$2|x + 3| = -12$	$6|1 - 5x| - 9 = 57$
$x-6=11 \quad x-6=-11$ $+6 +6 \quad +6 +4$ $x=17 \quad x=-17$ $x=-5$	$-5 -5$ $|5x|=40$ $5x=40 \quad 5x=-40$ $x=8 \quad x=-8$	$\dfrac{}{2} \dfrac{}{2}$ $|x+3| = -6$ No Solution	$+9 +9$ $\dfrac{6|1-5x|}{6} = \dfrac{66}{6}$ $|1-5x| = 11$ $1-5x=11 \quad 1-5x=-11$ $-1 \quad -1 \quad +1 \quad +1$ $\dfrac{-5x=10}{-5} \quad \dfrac{-5x=-12}{-5}$ $\boxed{x=-2}$

Determine whether each pair of ratios are equivalent ratios.

$\dfrac{27}{45}; \dfrac{3}{5}$	$\dfrac{18}{32}; \dfrac{3}{4}$	$\dfrac{1.2}{3}; \dfrac{6}{15}$
$135 = 135$ yes	$96 = 72$ No	$18 = 18$ yes

Solve the proportions

$\dfrac{4}{9} = \dfrac{a}{45}$	$\dfrac{9}{k+3} = \dfrac{3}{5}$	$\dfrac{9b-3}{9}; \dfrac{5b+5}{3}$
$\dfrac{9a}{9} = \dfrac{180}{9}$ $\boxed{a = 20}$	$3(k+3) = 45$ $3k+9=45$ $-9 \quad -9$ $\dfrac{3k}{3} = \dfrac{36}{3} \quad \boxed{k=12}$	$9(5b+5) = 3(9b-3)$ $45b+45 = 27b-9$ $-27b \quad -27b$ $18b+45 = -9$ $-45 \quad -45$ $\dfrac{18b=-54}{18} \quad b=-3$

Determine whether each percent of change is an increase or decrease and find the percent of change.

original:40, new:50	original:36, new:24	original:72, new:60
$50-40=10$ $\dfrac{10}{40} = \dfrac{x}{100}$ $\dfrac{1000}{40} = \dfrac{40x}{40}$ 25% inc	$24-36 = -12$ $\dfrac{12}{36} = \dfrac{x}{100}$ $\dfrac{1200}{36} = \dfrac{36x}{36}$ 33.3% dec	$60-72 = -12$ $\dfrac{-12}{72} = \dfrac{x}{100}$ $\dfrac{1200}{72} = \dfrac{72x}{72}$ 16.67% dec

Find the total price of each item.

Boots $64, tax 7%.	Jacket $129, discount 20%	Hockey skates $199, tax. 5.24%
$.07 \times 64 = 4.48$ $68.48	$129 \times .2 = 25.8$ $103.2	$199 \times .0524$ 10.43 $209.43

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Solve each formula or equation for the indicated variable.

$3x + 2y = 9$, for y	$m = \dfrac{2}{5}y + n$, for y	$7d - 3c = f + 2d$, for d
$\dfrac{-3x \quad -3x}{}$	$\dfrac{-n \quad -n}{}$	$\dfrac{-2d \qquad -2d}{5d-3c=f}$
$\dfrac{2y}{2} = \dfrac{-3x+9}{2}$	$\tfrac{5}{2}(m-n) = \tfrac{2}{5}y\left(\tfrac{5}{2}\right)$	$+3c \ +3c$
$y = \dfrac{-3x+9}{2}$	$\tfrac{5}{2}m - \tfrac{5}{2}n = y$	$\dfrac{5d}{5} = \dfrac{f+3c}{5}$

$$\boxed{d = \dfrac{f+3c}{5}}$$

Dimensional analysis

a. If the length of a rope is 20 inches, how many millimeters is it?

$$20 \text{ inches} \cdot \frac{2.54\,cm}{1\,inch} \cdot \frac{10\,mm}{1\,cm} = 508\,mm$$

b. Every day Joe drinks 3 cups of milk a day, how many gallons of milk does he have to buy a week?

$$\frac{3\ cups}{1\ Day} \cdot \frac{8\ ounces}{1\ cup} \cdot \frac{1\ gallon}{128\,oz} \cdot \frac{7\,days}{1\ wk}$$

1.3 gallons

c. Mrs. Oakden ran out of gas and needs to get 3 gallons of gasoline, but only has a water bottle in her car that measures 11 ounces, how many water bottles full of gas does she need?

$$\frac{3\ gaulgn\,s}{1\ gallon} \cdot \frac{128\,oz}{1} \cdot \frac{1\ water\ bottle}{11\,oz} = 34.9$$

35 water bottles

Weighted Averages

a. A lab technician has 40 gallons of 15% iodine solution. How many gallons of a 40% solution must he add to make a 20% iodine solution?

15	40
40	x
20	40+x

$$.15(40) + .4(x) = .2(40+x)$$
$$6 + 4x = 8 + .2x$$
$$-6 \quad -2x \quad -6 \quad -.2x$$
$$\frac{.2x}{.2} = \frac{2}{2} \qquad x = 10 \text{ gallons}$$

b. One type of antifreeze is 40% glycol, and another type of antifreeze is 60% glycol. How much of each kind should be used to make 100 gallons of antifreeze that is 48%?

.4	x
.6	100−x
.48	100

$$.4x + .6(100-x) = .48(100)$$
$$.4x + 60 - .6x = 48$$
$$-60 \qquad\qquad -60$$
$$-.2x = -12$$
$$\frac{-.2x}{-.2} = \frac{-12}{-.2} \qquad 60 = x$$

60 gallons of 40%
40 gallons of 60%

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Chapter 3

Find the x and y intercepts of each function.

$y = 3x + 5$	$2x - 3y = 18$	$y = \frac{1}{3}x + 5$
yint 5 xint $\frac{-5}{3}$ $0 = 3x + 5$ $-5 \quad -5$ $\frac{-5}{3} = \frac{3x}{3} \quad x = \frac{-5}{3}$	$2(0) - 3y = 18 \quad -3y = 18$ $\boxed{y = -6}$ $\frac{2x}{2} = \frac{18}{2} \quad \boxed{x = 9}$	yint 5 x int -15 $0 = \frac{1}{3}x + 5$ $-5 \qquad -5$ $\boxed{-5 = \frac{1}{3}x}$ (3)

Determine the slope of the line that passes through the points (5,8) and (-3,7)

(5,8) and (−3,7)	(6,−3) and (6,4)	(5,−2) and (3,−2)	(5,7) and (−3,7)
$\frac{8-7}{5+3} = \frac{1}{8}$	$\frac{-3-4}{6-6} = \frac{-7}{0}$ undefined	$\frac{-2+2}{5-3} = \frac{0}{2}$ 0	$\frac{7-7}{5+3} = \frac{0}{8}$ 0

Suppose *y* varies directly as *x*. Write a direct variation equation that relates *x* and *y*. Then solve.

$$y = kx$$

If y=15 when x=2, find y when x=8	If y=-6 when x=9, find x when y=-3	If y=4 when x=-4, find y when x=7
$\frac{15}{2} = \frac{k(2)}{2} \quad 7.5 = k$ $y = 7.5x$ $y = 75(8)$ $\boxed{y = 60}$	$\frac{-6}{9} = \frac{k(9)}{9}$ $-\frac{2}{3} = k \quad y = -\frac{2}{3}x$ $-\frac{3}{2} \quad -3 = -\frac{2}{3}x$ $\boxed{\frac{9}{2} = x}$	$\frac{4}{-4} = \frac{k(-4)}{-4}$ $-1 = k$ $y = -1x$ $y = -1(7)$ $\boxed{y = -7}$

Write an equation that describes the relation.

x	0	1	2	3	4
y	−5	2	9	16	23

+7 M=7
yint -5

$y = 7x - 5$

x	y
1	1
2	3
3	5
4	7
5	9

2=M   −1 = yint

$y = 2x - 1$

x	y
1	3
2	5
3	7
4	9
5	11

yint 1
slope 2

$y = 2x + 1$

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Write the equation for the nth term of the arithmetic sequence and find the specific term.

| $0, -15, -30, -45, \dots$
 12th term $\quad d = -15$
 $a_n = 0 + (n-1) - 15$
 $a_n = -15n + 15$
 $a_{12} = -15(12) + 15$
 $\quad\quad -165$ | $5, 8, 11, 14, \dots$
 21st term $\quad d = 3$
 $a_n = 5 + (n-1)3$
 $\quad 5 + 3n - 3$
 $a_n = 3n + 2$
 $a_n = 3(21) + 2 = 65$ | $-40, -32, -24, -16, \dots$
 11th term $\quad d = 8$
 $a_n = -40 + (n-1)8$
 $\quad -40 + 8n - 8$
 $a_n = 8n - 48$
 $a_{11} = 8(11) - 48$
 $a_{11} = 40$ | $1.4, 1.2, 1.0, \dots$
 13th term $\quad -.2$
 $a_n = 1.4 + (n-1) - .2$
 $\quad 1.4 - .2n + .2$
 $a_n = -.2n + 1.4$
 $a_{13} = -.2(13) + 1.4$
 $\quad -2.6 + 1.4$
 $\boxed{-12}$ |

Chapter 4

Write the equation of the line with the information given, and graph.

| Slope: 3, y-intercept: -2
 Equation: $y = 3x - 2$
  | Slope: -2, y-intercept: 2
 Equation: $y = -2x + 2$
  | Slope: $\frac{2}{3}$, y-intercept: 1
 Equation: $y = \frac{2}{3}x + 1$
  |

Determine the equation of the line graphed.

| $b = -4$
 $m = 2$
 Equation: $y = 2x - 4$ | $b = 3$
 $m = -\frac{3}{2}$
 Equation: $y = -\frac{3}{2}x + 3$ | $b = -2$
 $m = 2$
 Equation: $y = 2x - 2$ |

Write an equation of a line that passes through the given point and has the given slope.

| (1,2), slope 3
 $2 = 3(1) + b$
 $2 = 3 + b$
 $\underline{-3 \quad -3}$
 $-1 = b$

 $y = 3x - 1$ | (2,-6), slope -4
 $-6 = -4(2) + b$
 $-6 = -8 + b$
 $\underline{+8 \quad +8}$
 $2 = b$

 $y = -4x + 2$ | (-3,-1), slope 2/5
 $-1 = \frac{2}{5}(-3) + b$
 $-1 = -\frac{6}{5} + b$
 $\frac{5}{5} = -\frac{6}{5} + b$
 $\frac{-5}{5} \quad \frac{-6}{5}$
 $\frac{1}{5} = b$
 $y = \frac{2}{5}x + \frac{1}{5}$ | (5,-2), slope 1/3
 $-2 = \frac{1}{3}(5) + b$
 $-2 = \frac{5}{3} + b$
 $\frac{-6}{3} = \frac{5}{3} + b$
 $\frac{-5}{3} \quad \frac{-5}{3}$
 $-11/3 = b$
 $y = 1/3x - 11/3$ |

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Write an equation of a line that passes through the given points

$(2,-1)\ (5,2)$	$(-4,3)\ (1,13)$	$(3,5)\ (5,6)$	$(2,4)\ (4,7)$
$\dfrac{-1-2}{2-5} = \dfrac{-3}{-3} = 1$	$\dfrac{3-13}{-4-1} = \dfrac{-10}{-5} = 2$	$\dfrac{5-6}{3-5} = \dfrac{-1}{-2} = \dfrac{1}{2}$	$\dfrac{4-7}{2-4} = \dfrac{-3}{-2} = \dfrac{3}{2}$
$2 = 1(5) + b$ $-5\quad -5$ $-3 = b$	$13 = 2(1) + b$ $13 = 2 + b$ $\dfrac{-2\ -2}{11 = b}$	$6 = \dfrac{1}{2}(5) + b$ $6 = 2.5 + b$ $\dfrac{-2.5\ -2.5}{3.5}$	$7 = \dfrac{3}{2}(4) + b$ $7 = 6 + b$ $\dfrac{-6\ -6}{1 = b}$
$y = x - 3$	$y = 2x + 11$	$y = \dfrac{1}{2}x + 3.5$	$y = 3/2\,x + 1$

Write each equation in standard form

$y - 7 = -3(x+1)$	$y + 3 = 5(x-1)$	$y + 9 = \dfrac{1}{2}(x-3)$	$y + 4 = -\dfrac{4}{5}(x-3)$
$y - 7 = -3x - 3$ $+7\qquad +7$ $y = -3x + 4$ $+3x\ +3x$ $\boxed{3x + y = 4}$	$y + 3 = 5x - 5$ $-3\qquad -3$ $y = 5x - 8$ $-5x\ -5x$ $\boxed{-5x + y = -8}\ -1$ $\boxed{5x - y = 8}$	$2y + 18 = x - 3$ $-x - 18\ \ -x - 18$ $\boxed{(-x + 2y = -21)}\ -1$ $\boxed{x - 2y = 21}$	$5y + 20 = -4(x - 3)$ $5y + 20 = -4x + 12$ $\dfrac{-20\qquad +4x\ -20}{}$ $\boxed{4x + 5y = -8}$

Write each equation in slope intercept form.

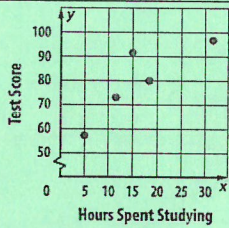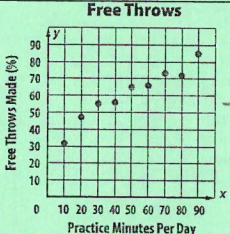| $y - 2 = 3(x-5)$	$y - 12 = -2(x-3)$	$y + 3 = \dfrac{1}{2}(x-2)$
$y - 2 = 3x - 15$ $+2\qquad +12$ $\boxed{y = 3x - 13}$	$y - 12 = -2x + 6$ $+12\qquad +12$ $\boxed{y = -2x + 18}$	$y + 3 = \dfrac{1}{2}x - 1$ $-3\qquad -3$ $\boxed{y = \dfrac{1}{2}x - 4}$

Write an equation in slope intercept form for the line that passes through the given point and is <u>parallel</u> **to the graph of each equation.**
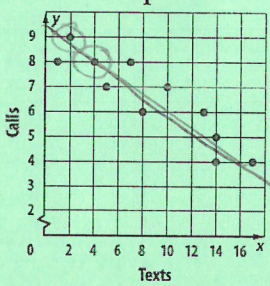
$(2,5),\quad y = x - 3\qquad m = 1$	$(0,-3),\quad y = 3x + 5$	$(-4,1),\quad 2x + y = -6$
$5 = 1(2) + b$ $5 = 2 + b$ $\dfrac{-2\ -2}{3 = b}$ $\boxed{y = 1x + 3}$	$-3 = 3(0) + b$ $-3 = b$ $\boxed{y = 3x - 3}$	$\dfrac{-2x\qquad -2x}{y = -2x - 6}$ $1 = -2(-4) + b$ $1 = 8 + b$ $\dfrac{-8\ -8}{-7 = b}$ $\boxed{y = -2x - 7}$

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Write an equation in slope intercept form for the line that passes through the given point and is perpendicular to the graph of each equation.

(2,4), $y = \frac{1}{3}x + 4$ M = -3	(3,0), $y = -\frac{1}{2}x + 3$ M = 2	(1,6), $2x + y = -4$
$4 = -3(2) + b$ $4 = -6 + b$ $+6 \quad +6$ $10 = b$ $\boxed{y = -3x + 10}$	$0 = 2(3) + b$ $0 = 6 + b$ $-6 \quad -6$ $-6 = b$ $\boxed{y = 2x - 6}$	$\frac{-2x \quad -2x}{}$ M = $\frac{1}{2}$ $y = -2x - 4$ $6 = \frac{1}{2}(1) + b$ $6 = \frac{1}{2} + b$ $-\frac{1}{2} - \frac{1}{2} \quad 5.5 = b$ $\boxed{y = \frac{1}{2}x + 5.5}$

Determine whether the graph shows a positive, negative, or no correlation, explain what it means.

Positive Correlation, the more hours you study the higher your test score

Positive Correlation, the more you practice the higher % of free throws made

A scatterplot of data compares the number of years since a business has opened its annual number of sales. It contains the points (2,650) and (5, 1280). Write an equation in slope intercept form for the line of best fit. $\frac{1280 - 650}{5 - 2} = \frac{630}{3} = 210$ $650 = 210(2) + b$ $650 = 420 + b$ $-420 \quad -420$ $230 = b$ $\boxed{y = 210x + 230}$	Draw a line of best fit for the data and find the line of best fit equation using the closest two points. $(2,9)(4,8)$ $-\frac{1}{2}$ $8 = -\frac{1}{2}(4) + b$ $8 = -2 + b$ $+2 \quad +2$ $10 = b$ $\boxed{y = -\frac{1}{2}x + 10}$

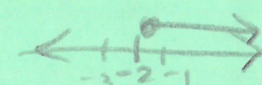**Find the inverse of the relations and function.**
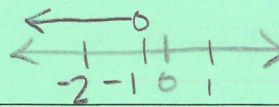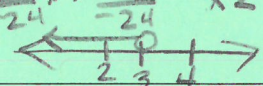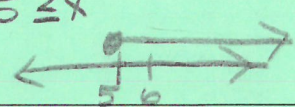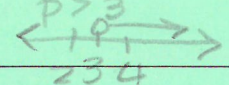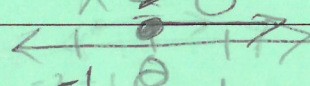
X	Y
-4	2.7
-1	3.8
0	4.1
3	7.2

X	Y
2.7	-4
3.8	-1
4.1	0
7.2	3

{(7, 3.5), (6.2, 8), (−4, 2.7), (−12, 1.4)}

$\{(3.5, 7)(8, 6.2)(2.7, -4)(1.4, -12)\}$

$f(x) = \frac{5}{11}x + 10$

$y = \frac{5}{11}x + 10$

$x = \frac{5}{11}y + 10$
$-10 \qquad -10$

$\frac{11}{5} \quad x - 10 = \frac{5}{11}y(\frac{11}{5})$

$\frac{11}{5}x - 22 = y$

$f^{-1}(x) = \frac{11}{5}x - 22$

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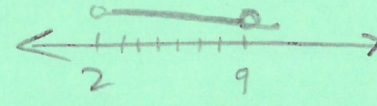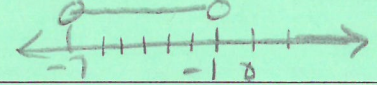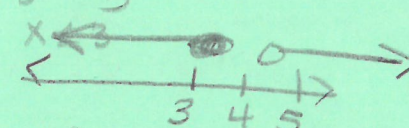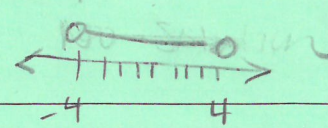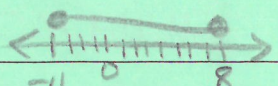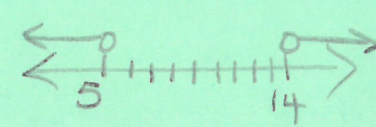
$f(x) = 3x + 8$	$f(x) = -\dfrac{1}{4}x + 2$	$f(x) = -4x - 12$
$x = 3y + 8$ $\dfrac{x-8}{3} = \dfrac{3y}{3}$ $\boxed{f^{-1}(x) = \dfrac{x-8}{3}}$	$x = -\dfrac{1}{4}y + 2$ $\dfrac{-2\quad\quad -2}{}$ $-4x - 2 = \dfrac{1}{4}y(-4)$ $-4x + 8 = y$ $\boxed{f^{-1}(x) = -4x + 8}$	$x = -4y - 12$ $\dfrac{+12 \quad\quad +12}{}$ $\dfrac{x+12}{-4} = \dfrac{-4y}{-4}$ $-\dfrac{1}{4}x - 3 = y$ $\boxed{f^{-1}(x) = -\dfrac{1}{4}x - 3}$

Chapter 5

Solve the inequalities _and_ graph

$3 < -5n + 2n$	$-3 - 6(4x + 6) > -111$	$-138 \geq -6(6b - 7)$
$\dfrac{3}{3} < \dfrac{-3n}{-3}$ $-1 > n$ (number line: open circle at -1, -2 -1 0 1)	$-3 - 24x - 36 > -111$ $-24x - 39 > -111$ $\dfrac{+39 \quad +39}{}$ $\dfrac{-24x}{-24} > \dfrac{-72}{-24} \quad x < 3$ (number line: 2 3 4)	$-138 \geq -36b + 42$ $\dfrac{-42 \quad\quad -42}{}$ $\dfrac{-180}{-36} \geq \dfrac{-36x}{-36}$ $5 \leq x$ (number line: closed circle at 5, 5 6)
$-8x + 2x - 16 \leq -5x + 7x$	$3(p - 3) - 5p > -3p - 6$	$28 - 7x \leq -4(-7x - 7)$
$-6x - 16 \leq 2x$ $\dfrac{+6x \qquad +6x}{}$ $\dfrac{-16}{8} \leq \dfrac{8x}{8} \quad -2 \leq x$ (number line: -3 -2 -1)	$3p - 9 - 5p > -3p - 6$ $-2p - 9 > -3p - 6$ $\dfrac{+3p \qquad +3p}{}$ $p - 9 > -6$ $\dfrac{+9 \quad +9}{}$ $p > 3$ (number line: 2 3 4)	$28 - 7x \leq 28x + 28$ $\dfrac{-28x - 28x - 28}{}$ $\dfrac{-35x}{-35} \leq \dfrac{0}{-35} \qquad 0$ $x \geq 0$ (number line: -1 0 1)

Solve the compound inequalities _and_ graph

$m - 3 < 6 \text{ and } m + 2 > 4$	$-4 < -2t - 6 < 8$	$3x + 2 \leq 11 \text{ or } 5x > 22$
$\dfrac{+3 \quad +3}{} \qquad \dfrac{-2 -2}{}$ $m < 9 \qquad\quad m > 2$ (number line: open circles at 2 and 9)	$\dfrac{+6 \qquad +6 \ +6}{}$ $\dfrac{2}{-2} < \dfrac{-2t}{-2} < \dfrac{14}{-2}$ $-1 > t > -7$ (number line: -7 to 0)	$\dfrac{-2 -2}{} \qquad \dfrac{5}{5} \ \dfrac{}{5}$ $\dfrac{3x}{3} \leq \dfrac{9}{3} \qquad x > 4.4$ $x \leq 3$ (number line: 3 4 5)
$-3w + 4 > -8 \text{ and } 2w - 11 > -19$	$-11 \leq 2h - 3 \leq 13$	$y - 8 < -3 \text{ or } y + 5 > 19$
$\dfrac{-4 -4}{} \qquad \dfrac{+11 \ +11}{}$ $\dfrac{-3w}{-3} > \dfrac{-12}{-3} \quad \dfrac{2w}{2} > \dfrac{-8}{2}$ $w < 4 \quad 3 \quad w > -4$ (number line: -4 to 4)	$\dfrac{+3 \qquad -13 +3}{}$ $\dfrac{-8}{2} \leq \dfrac{2h}{2} \leq \dfrac{16}{2}$ $-4 \leq h \leq 8$ (number line: -4 0 8)	$\dfrac{+8 \ +8}{} \qquad \dfrac{-5 -5}{}$ $y < 5 \qquad y > 14$ (number line: open circles at 5 and 14)

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