Chapter 0, 1 and 2.1-2.4 Review

Name: Key Date: _____ Period: _____

Chapter 0: Preparing for Advanced Algebra

Solve the equation by factoring.

1). $x^2 + 5x = 0$

$x(x+5) = 0$

$x = 0, -5$

2). $x^2 - 6x - 27 = 0$

$(x-9)(x+3) = 0$

$x = -3, 9$

3). $x^2 + 5x = 24$

$x^2 + 5x - 24 = 0$

$(x+8)(x-3) = 0$

$x = -8, 3$

4). $x^2 + 12x - 45 = 0$

$(x+15)(x-3) = 0$

$x = -15, 3$

5). $9x^2 - 25 = 0$

$(3x-5)(3x+5) = 0$

$x = \pm 5/3$

6). $3x^2 - 12x - 36 + 0$

$3(x^2 - 4x - 12) = 0$

$(x-6)(x+2) = 0$

$x = 6, -2$

Multiply Polynomials

1). $-2x(3x^2 - 4x)$

$= -6x^3 + 8x^2$

2). $(x+2)(x+6)$

$= x^2 + 8x + 12$

3). $(3x-2)(4x+3)$

$= 12x^2 - 8x + 9x - 6$

$= 12x^2 + x - 6$

4). $(2x+1)^2$

$= (2x+1)(2x+1)$

$= 4x^2 + 4x + 1$

Chapter 1: Equations and Inequalities

Simplify the expression.

1). $25x + 14 - 17 - 6x$

$= 19x - 3$

2). $6y + 12x - 12y - 9x$

$= 3x - 6y$

3). $6(x-2) - 8x + 40$

$= 6x - 12 - 8x + 40$

$= -2x + 28$

4). $5(2x + 3) + 8(x - 6)$

$= 10x + 15 + 8x - 48$

$= 18x - 33$

Solve the equation.

1). $-6x - 8 = 10$

$-6x = 18$

$x = -3$

2). $-5 + 36x = 175$

$36x = 180$

$x = 5$

3). $16 + \frac{x}{6} = 14$

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

$x = -12$

4). $\frac{x-10}{-2} = 12$

$x - 10 = -24$

$x = -14$

5). $-7x - 14 = -2x + 11$

$-25 = 5x$

$-5 = x$

6). $-17x + 23 = -4 - 8x$

$27 = 9x$

$3 = x$

7). $2(x - 3) = 4x + 6$

$2x - 6 = 4x + 6$

$-12 = 2x$

$-6 = x$

8). $\frac{10(x-2)}{5} = 14$

$10x - 20 = 70$

$10x = 90$

$x = 9$

9). $7 - 5x = 10 - (6x + 7)$

$7 - 5x = 10 - 6x - 7$

$7 - 5x = 3 - 6x$

$x = -4$

10). $4(x-3) - x = x - 6$

$4x - 12 - x = x - 6$

$3x - 12 = x - 6$

$2x = 6$

$x = 3$

11). $\frac{7x+4}{3} = 2x - 1$

$7x + 4 = 6x - 3$

$\boxed{x = -7}$

12). $\frac{2x+11}{3} = \frac{x+5}{2}$

$4x - 22 = 3x + 15$

$\boxed{x = -7}$

Word Problems

1. A New York City taxi charges \$2.50, plus \$0.40 for each fifth of a mile if it is not delayed by traffic. Write an expression for the coast of the ride if you travel x miles in the taxi with no traffic delays.

$0.40 \rightarrow 1/5$ mile

$2 \rightarrow$ mile

$C = 2.50 + 2x$

2. You buy a jacket, and the sales tax is 6%. The total cost is \$74.49. Find the cost of the jacket before the tax.

$74.49 = 1.06(\text{cost})$

\$70.27 = cost

3. It takes 3 hours for a train to travel 175 miles What is the average speed of the train?

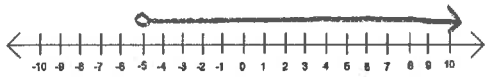
$\frac{175 \text{ mi}}{3 \text{ hr}} = 58\ 1/3$ mph

Solve the inequality. Then graph the solution.

1). $15x + 8 > 9x - 22$

$6x > -30$

$x > -5$



2). $-5 < 3 - x < 5$

$-8 < -x < 2$

$8 > x > -2$

$-2 < x < 8$

3). $-4 \le g + 8 < 6$

$-12 \le g < -2$

4). $m - 7 \ge -3$ or $-2m + 1 \ge 11$

$m \ge 4$ or $-2m \ge 10$

$m \le -5$

Solve the equation. Check for extraneous solutions.

1). $|3x + 2| = 7$

$3x+2=7$ and $3x+2=-7$

$3x=5$ $\quad$ $3x=-9$

$x=5/3$ $\quad$ $x=-3$

$x = -3, 5/3$

2). $|9x - 5| = 2x$

$9x-5=2x$ and $9x-5=-2x$

$-5=-7x$ $\quad$ $-5=-11x$

$5/7=x$ $\quad$ $5/11=x$

$x = 5/7, 5/11$

3). $3|2x - 3| - 5 = 4$

$3|2x-3| = 9$

$|2x-3| = 3$

$2x-3=3$ and $2x-3=-3$

$2x=6$ $\quad$ $2x=0$

$x=3$ $\quad$ $x=0$

$x = 0, 3$

4). $-2|5y - 1| = -10$

$|5y-1| = 5$

$5y-1=5$ and $5y-1=-5$

$5y=6$ $\quad$ $5y=-4$

$y=6/5$ $\quad$ $y=-4/5$

$y = -4/5, 6/5$

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Honors Algebra 2
Chapter 0, 1 and 2.1-2.4

Solve the inequality. Then graph the solution.

1). $|x - 5| \geq 1$

$x - 5 \geq 1$ or $x - 5 \leq -1$

$x \geq 6$ $\quad$ $x \leq 4$

$x \geq 6$ or $x \leq 4$

2). $|5 - 2x| > 7$

$5 - 2x > 7$ or $5 - 2x < -7$

$-2x > 2$ $\quad$ $-2x < -12$

$x < -1$ $\quad$ $x > 6$

$x < -1$ or $x > 6$

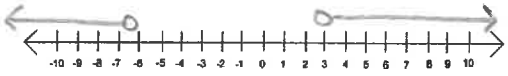
3). $|3v + 5| > 14$

$3v + 5 > 14$ or $3v + 5 < -14$

$3v > 9$ $\quad$ $3v < -19$

$v > 3$ $\quad$ $v < -19/3$

$v < -19/3$ or $v > 3$



4). $|4t - 3| \leq 7$

$4t - 3 \leq 7$ and $4t - 3 \geq -7$

$4t \leq 10$ $\quad$ $4t \geq -4$

$t \leq 10/4$ $\quad$ $t \geq -1$

$-1 \leq t \leq 5/2$

Chapter 2: Linear Equations and Functions

Find the slope of the line passing through the given points.

1). $(-2, -1), (4, 3)$

$$m = \frac{3-(-1)}{4-(-2)}$$

$$= \frac{4}{6}$$

$= 2/3$

2). $(1, -5), (1, 2)$

$$m = \frac{2-(-5)}{1-1}$$

= undefined

vertical line

3). (5, −3), (1, 2)

$m = \frac{2-(-3)}{1-5} = -5/4$

4). (6, 2), (−8, 2)

$m = \frac{2-2}{-8-6} = 0$

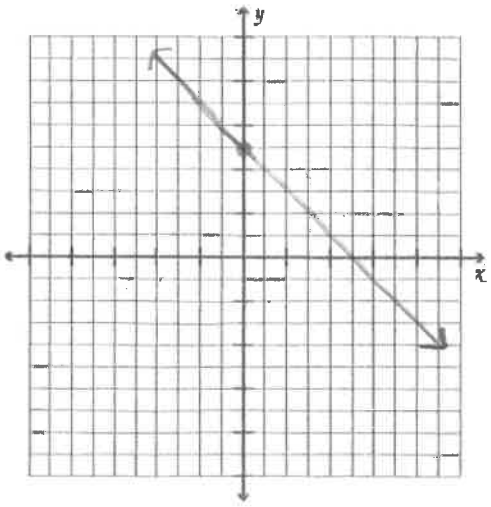
horizontal line

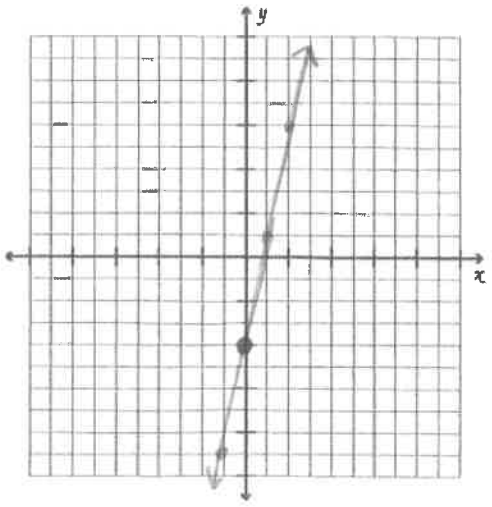
Graph the equation.

1). $y = 5 - x$

2). $y - 5x = -4$

$y = 5x - 4$





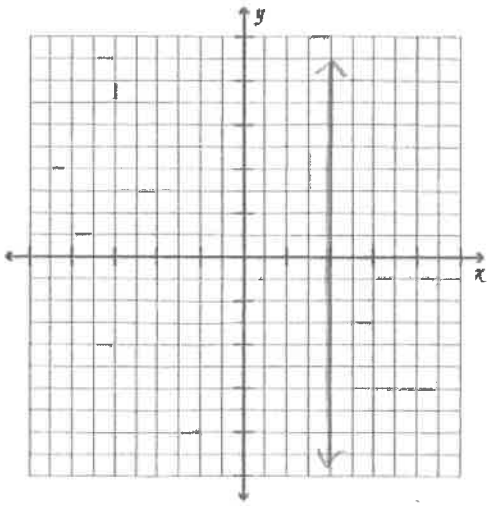
3). $x = 4$

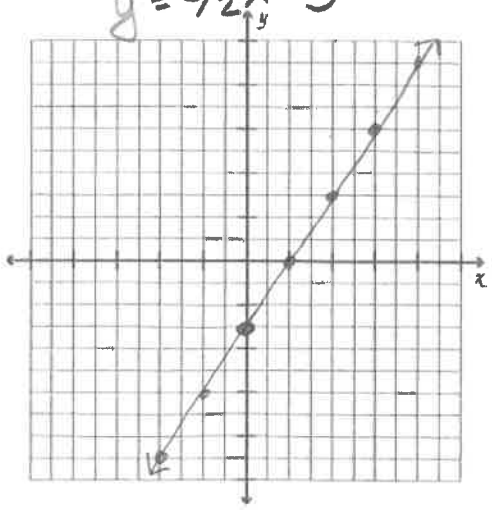
4). $6x - 4y = 12$

$-4y = -6x + 12$

$y = 6/4x - 3$

$y = 3/2x - 3$





Equations of a Line

- Slope-Intercept Form

$y = mx + b$

- Point-Slope Form

$y - y_1 = m(x - x_1)$

- Standard Form

$Ax + By = C$

1. Write an equation for a line that goes through (3, 5) and has slope $m = 2$ in slope intercept form.

$5 = 2(3) + b$

$-1 = b$

$\boxed{y = 2x - 1}$

2. Write an equation for a line that goes through (2, -3) and (1, 1) in standard form.

$m = \frac{1-(-3)}{1-2}$

$= \frac{4}{-1}$

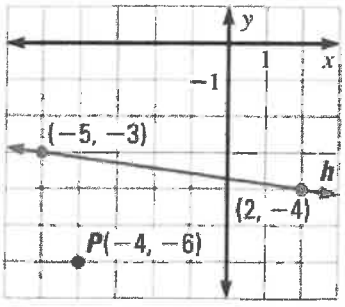
$= -4$

$y - 1 = -4(x - 1)$

$y - 1 = -4x + 4$

$\boxed{4x + y = 5}$

3. Write an equation for the line in the coordinate plane below



$m = -1/7$

$y + 4 = -1/7(x - 2)$

or

$y + 3 = -1/7(x + 5)$

4. Write an equation for the line that has x-intercept = 2 and y-intercept =– 1 in all three forms.

(2, 0)
(0, -1)

$m = \frac{-1-0}{0-2}$

$= \frac{1}{2}$

$\frac{1}{2}x + y = -1$

$x + 2y = -2$

$y = \frac{1}{2}x - 1$

$y + 1 = \frac{1}{2}x$ or $y = \frac{1}{2}(x-2)$

$x + 2y = -2$

Write the equation of the line that passes through the given points.

1). (– 3, 4), (2, – 6)

$m = \frac{-6-4}{2-(-3)}$

$= \frac{-10}{5}$

$= -2$

$y + 6 = -2(x - 2)$

or

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

or

$y = -2x - 2$

or

$2x + y = -2$

2). (-4, 1), (3, -6)

$m = \frac{-6-1}{3-(-4)}$

$= \frac{-7}{7}$

$= -1$

$y + 6 = -1(x - 3)$

or

$y - 1 = -1(x + 4)$

or

$y = -x - 3$

or

$x + y = -3$