Midterm Review Checklist

Are you comfortable with each type of problem listed below? If yes, complete the example and check off the box. If not, review your notes for that section, try the example and check your answer to make sure you are correct.   Any topics that you are still unsure about, you should be sure to follow up in class.

Chapter 1: Expressions, Equations and Functions

☐ I can evaluate a basic algebraic expression (1.1) **Ex:** $4 + 2w$ when $w = -3$

☐ I can solve an order of operations problem (1.2) **Ex:** $4 - 2 + 3 \div 3 \cdot 4$

☐ I can translate verbal phrases into algebraic expressions, equations or inequalities (1.3/1.4) **Ex:** 3 less than three times the sum of x and 7

☐ I can decide if a given number is a solution to an equation or inequality. (1.4) **Ex:** $2x + 1 \geq 9$ is 3 a solution?

☐ I can decide if a relationship represents a function by analyzing input and output. I am also sure that my reasoning makes sense. (1.6) **Ex:** Does the following represent a function? Why or why not?

x	1	2	2	3
y	4	7	3	4

☐ I can write a rule for a function using the $\Delta y / \Delta x$ method. (1.6) **Ex:** Write a rule for the function:

x	−3	0	3	6	9
y	1	3	5	7	9

Chapter 2: Properties of Real Numbers

☐ I can perform operations with integers. (2.2,2.3,2.4,2.6) **Ex:** $-6 \cdot (-4) + 8$

☐ I can apply the properties of absolute value and opposites. (2.1) **Ex:** $-r + |3r|$ when $r = -4$

☐ I can perform operations involving fractions. (2.2/2.3) **Ex:** $-2\frac{1}{3} + 4\frac{1}{5}$

☐ I can combine like terms.   (2.5) **Ex:** $3 - 4x - 2 + 7x$

☐ I can apply the distributive property. (2.5) **Ex:** $-4(2x - 5)$

☐ I can simplify division problems. (2.5) **Ex:** $\frac{9x-6}{-3}$

□ I can classify numbers as rational, irrational, integer or whole. (2.1)   **Ex:** a) $-3\frac{3}{4}$ b) $\sqrt{12}$
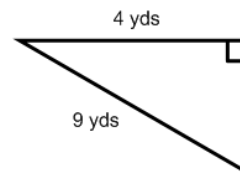
□ I can order real numbers. (2.7)   **Ex:** $-2.2, 2\frac{4}{5}, -\sqrt{12}, \sqrt{6}$

Chapter 11: Simplifying Radicals and Pythagorean Theorem

□ I can find the missing side of a right triangle. (11.4)   **Ex:**

□ I can decide if three sides could possibly form a right triangle. (11.4)   **Ex:** 13, 12, 5

□ I can simplify radicals. (11.2)   **Ex:** $3\sqrt{32}$

□ I can rationalize the denominator. (11.2)   **Ex:** $\sqrt{\frac{24}{7}}$

□ I can perform operations with radicals. (11.2 continued)   **Ex:** a) $2\sqrt{7} + 3\sqrt{63}$

b) $\sqrt{3}\left(2 + \sqrt{12}\right)$

ACC only –   c) $\left(\sqrt{7} + \sqrt{2}\right)\left(\sqrt{7} - 3\sqrt{2}\right)$

Chapter 3: Solve Linear Equations

□ I can solve a one-step equation. (3.1)   **Ex:** $4 - x = -9$

□ I can use reciprocals to solve one-step equations. (3.1)   **Ex:** $-\frac{3}{5}x = 12$

□ I can solve two-step equations. (3.2)   **Ex:** $2x - 4 = 12$

□ I can solve multi-step equations. (3.3)   **Ex:** $4(x - 3) + 3 = 11$

□ I can solve equations with variables on both sides and interpret answers appropriately. (3.4)   **Ex:** a) $2(x + 6) = 3(x + 4)$

b) $4(x - 5) = 2(x + 3)$

c) $6(3x + 6) = 9(2x + 4)$

d) $4(3x + 4) = 6(2x + 5)$

□ I can solve a proportion (3.5/3.6)   **Ex:** $\frac{2}{2x+1} = \frac{4}{6x+1}$

□ I can solve a percent problem. (3.7) **Ex:** 30 is 45% of what number?

□ I can rewrite equations in function form. (3.8) **Ex:** $4x - 5y = 20$

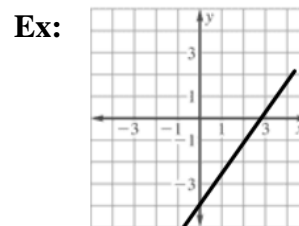# Chapter 4: Graph Linear Equations and Functions

□ I can check if an ordered pair is a solution to a linear equation. (4.2) **Ex:** $2y - 5x = -11$ is (2, 3) a solution?

□ I can graph by making a table. (4.2) **Ex:** Graph $2x - 4y = 8$

□ I can identify x and y intercepts of a graphed line. (4.3) **Ex:**

□ I can find x and y intercepts given an equation. (4.3) **Ex:** $2x - 5y = -10$

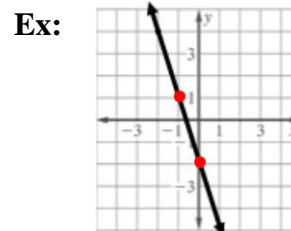□ I can graph using x and y intercepts. (4.3) **Ex:** Graph $7x + 2y = 14$

□ I can find slope given two points. (4.4) **Ex:** a) (20, 5), (10, 1)

b) (−3, 2), (−3, 7)

c) (4, 5), (8, 5)

□ I can find slope of a graphed line. (4.4) **Ex:**

□ I can find rate of change (4.4) ACC only **Ex:** At 12:20 P.M. a parachutist is 6200 feet above the ground. At 12:27, the parachutist is 1100 feet above the ground. Find the average rate of change in feet per minute.

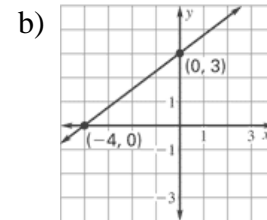□ I can identify the slope and y-intercept given an equation. (4.5) **Ex:** $y = 3x - 2$

□ I can graph using slope-intercept form. (4.5) **Ex:** Graph $y = -\frac{2}{3}x + 1$

□ I can decide if an equation represents direct variation (4.6) **Ex:** a) $y - 3x = 2$

b)

(0, 3)
(−4, 0)

□ I can write a direct variation equation. (4.6)

Ex: *y* varies directly with *x* and passes through the point (4, 8). Write the direct variation equation relating *x* and *y*.

□ I can evaluate functions written in function notation. (4.7) ACC only

Ex: a) If $f(x) = 2x - 3$, evaluate when $x = 4$.

b) Find *x* when $f(x) = 6$ (use the same function above)

□ I can identify domain and range of a function (4.2/4.3)

Ex: You are going to a concert. Tickets cost $50 each and it costs $20 to park. You have $320 to spend. Identify the domain and range.

Chapter 5: Write Linear Equations (ACC only)

□ I can write equations in slope-intercept form with a variety of information. (5.1/5.2)

Ex: a) $m = 7\ b = -3$

b) Passes through (0, 5) and $m = 4$

c) (6, 3) slope: -2

d) (–2, 5) (2, –1)

□ I can write equations of parallel and perpendicular lines (in slope-intercept form). (5.5)

Ex: passes through (–3, –5) $||$ to $y = 3x - 1$

Ex: passes through (4, –2) $\perp$ $y - 4x = 2$

□ I can decide if equations represent parallel or perpendicular lines. (5.5)

Ex: Line A: $y = -3x + 1$ **Line B:** $-x + 3y = 1$ **Line C:** $2x - 6y = 4$

□ I can write equations in standard form with a variety of information. (5.6)

Ex: a) passes through (2, 2) (4, –2)   b) $Ax + 3y = 2$, passes through (–1, 0)