Linear Relations Test Review
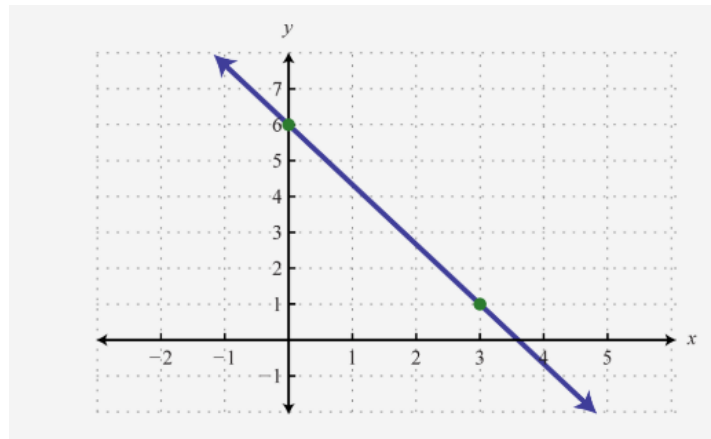
1. Evan earns $7/h babysitting. The amount he earns, in dollars, varies directly with the time, in hours, he babysits.

    a) Assign variables. Make a table of values showing Evan's earnings for 0 h, 1 h, 2 h, 3 h, and 4 h.

    b) Graph the relationship.

    c) Identify the constant of variation. What does this represent?

    d) Write an equation for Evan's earnings.

2. The owner of a small business is having brochures printed. The design cost is $1500. Printing costs $0.08 per brochure. The relationship between cost and the number of brochures is a partial variation.

    a) Identify the fixed cost and the variable cost.

    b) Write an equation for this relationship.

    c) What is the total cost for 800 brochures?

3. It took 8 min to fill a 52-L bucket. What is the rate of change of the volume of water?

4. Write the equation of a line with each slope and y-intercept. Then, graph each line.

    a) $m = -1, b = 0$

    b) $m = \frac{2}{3}, b = 5$

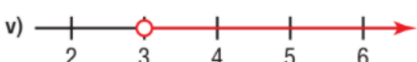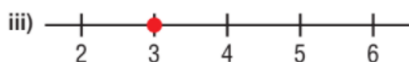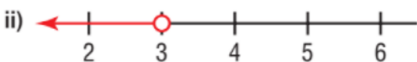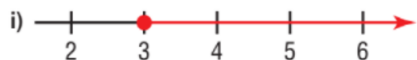**5.** Identify the slope, y-int and equation of the graph:

m:_____

b:_____

Equation: _____

6. Identify the x- and y-intercepts of the line. Then, graph the line. $4x - 2y = 8$

7. Match each equation or inequality with the graph of its solution below.

    a) $x > 3$ c) $x = 3$

    b) $x \leq 3$ d) $x < 3$
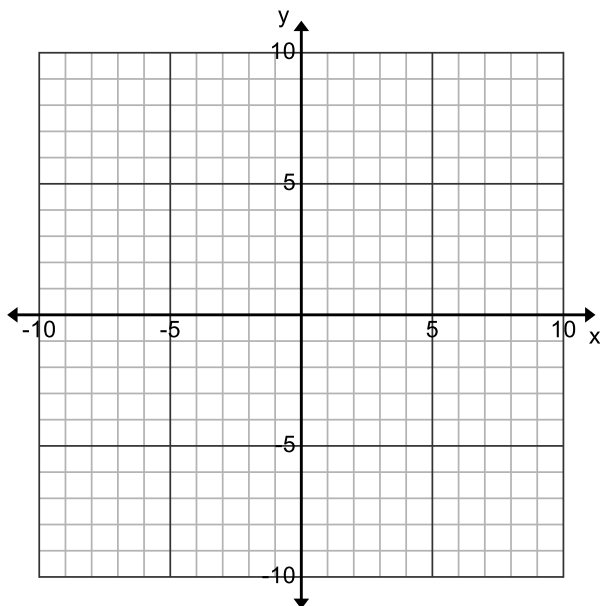
8. Solve the following inequalities:

a) $x + 5 > 2$ b) $5x - 7 < 4x + 4$ c) $2 - 3x \le 2x + 7$

9. Define a variable and write an inequality to model the situation: Tyson always makes sure that he has more than \$35 in his bank account.

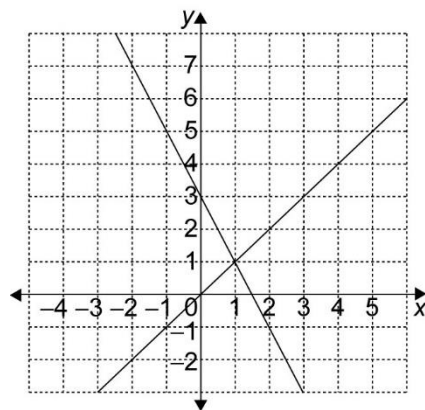**10.** Graph the following inequality. Check your work using Desmos: $2y - 5x < 2$

11. What is the equation of the line that has a slope of 2 and passes through the point (4,6)

12. What is the equation of the line that passes through points C(4, 5) and D(5, 1).

13. What is the solution to this linear system to the right →?

14. Solve the linear system $x + y = 6$ and $y - 2x = 0$.

Answer Key
1. c) 7; the amount Evan earns each hour he babysits **d)** $y = 7x$ **2. a)** fixed cost: \$1500 variable cost: \$0.08 times the number of brochures **b)** $C = 0.08n + 1500$ **c)** \$1564 **3.** 6.5 L/min **4. a)** $y = -x$ (check graph using Desmos) **b)** $y = \frac{2}{3}x + 5$

5. $y = -\frac{5}{3}x + 6$ **6.** x-intercept: 2; y-intercept: −4 (Check graph using Desmos) **7. a)** v   **b)** iv   **c)** iii **d)** ii **8. a)** x > -3
b) x < 11   **c)** x ≥ -1   **9.** Let "t" represent Tyson's bank account balance. t ≥ 35   **10.** Check graph using Desmos
11. y = 2x − 2 **12.** y = −4x + 21 **13.** (1 , 1) **14.** (2, 4)