1. Write a rule for the line that passes through the each of the following sets of points. Show calculations or explain reasoning that you used to find the rule then, identify the slope and y-intercept.

   a. (-2,6) and (4,15)

   $\frac{15-6}{4+2} = \frac{9}{6} = 1.5$ y = 1.5x + 9

   b. (4,5) and (8,3)

   $\frac{3-5}{8-4} = \frac{-2}{4} = -.5$ y = -.5x + 7

2. The cross country team is ordering team jackets. They are looking at two different companies to order from.

   The cost y (in dollars) of x jackets ordered from Running.com can be calculated using the rule y = 40x + 50. The cost y (in dollars) of buying x jackets from Running Inc. is y = 30x + 60.

   a. In this situation, which variable is naturally independent and which is dependent? Explain your reasoning.

   Independent: # of jackets   Dependent: cost

   Explanation: The cost depends on the # of jackets bought

   b. Identify the slope and y-intercept of the equation y = 40x + 50. Then explain the meaning of each in terms of the context.

   Slope = 40

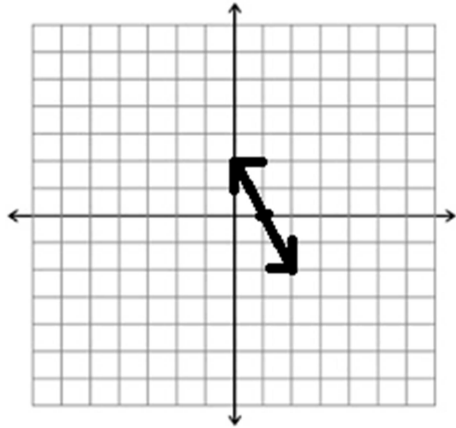   Meaning: For every jackets bought the cost increases by 40 each time.

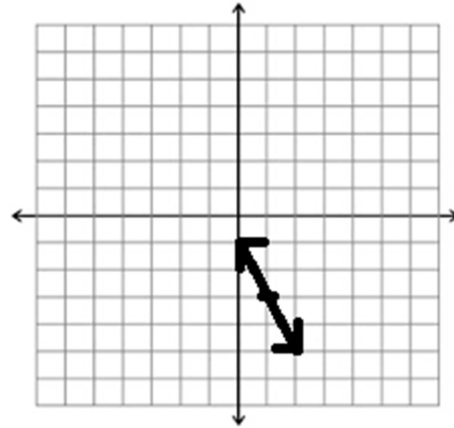   y-intercept = 50

   Meaning: The starting cost is 50.

   c. Write and solve an inequality to help determine the number of sweatshirts that would make your bill cost less at Running.com then at Running Inc. Show our work algebraically.   40x + 50 > 30x + 60

3. Graph each line on the coordinate planes provided.

      a. y = -2x + 2   b. y = -1 + -2x

4. Main Street Taxi charges at $1.50 flat rate in addition to $0.50 per mile. Katherine has $15 to spend of a ride.

      a.   Write an inequality that would answer the following question. How many miles can Katherine ride and not exceed her cash limit?

          1.50 + .50x ≤ 1.5

      b.   Solve the inequality above and then explain what your answer means.

          -1.50   - 1.50

          ÷ 5   ÷ 5

          Explanation: x ≤ 27

6. Put the following algebraic expressions in simplest form.

      a. -33v – 49v   b. – 7(k – 8) + 2k

      -82v   -5k - 56

      c. 8(6v – 1 + v^2) – 10v   d. 8 + 10w + 5x –x – 15 + w + 2w – 15y

      38v – 8 + 8v^2   -7 + 4x + 3w -15y

7. Distribute, if needed, combine like terms, and then write each answer in factored form.

    a. $10y + 2$ b. $9p + 27$

    $2(1 + 5y)$ $9(p+3)$

    c. $18 - 5(2x + 4 - 8x)$ d. $4b + 6 - 4 - 3b - 10b + 27 - 5$

    $2(-1 + 5x)$ $3(-3b + 8)$

8. Speedy Telegram Service charges a $30 base fee and $0.80 for each letter and symbol. Quick Delivery charges $25 base fee and $0.90 for each character.

    a. Write an equation for each company that can be used to find the cost for any given amount of characters.

        Speedy Telegram Service: $y = .80x + 30$

        Quick Delivery: $y = .90x + 25$

    b. Use tables or graphs (on your calculator) to find out how much Speedy Telegram would charge for 10 letters.

        $Y = 38$

    c. Write an equation that would represent the amount of symbols needs to make their costs the same. Find this answer algebraically or on your calculator.

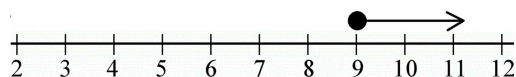 $.90x + 25 = .80x + 30$

        $-.80x \qquad -.80x$

               $-25 \qquad -25$

        $.10x \quad = \quad 5$

        $x \quad\quad = \quad 50$

Solve and graph the inequalities below.

9) $-7x + 7 \leq -56$

10) $-3(p - 7) \geq 21$