Linear functions worksheet

1. A members-only speaker series allows people to join for $5 and then pay $4 for every event attended. Write an equation that shows the relationship between the number of events attended a and the total cost c.

2. Andy is planning a birthday party for his son. The cost of the party is represented by the equation: $40P - 3C + 800 = 0$, where P is the number of people attending and C is the total cost of the party.

   i)Graph the cost versus the number of people

   ii) What is the cost of renting the hall?

   iii)What is the cost per person?
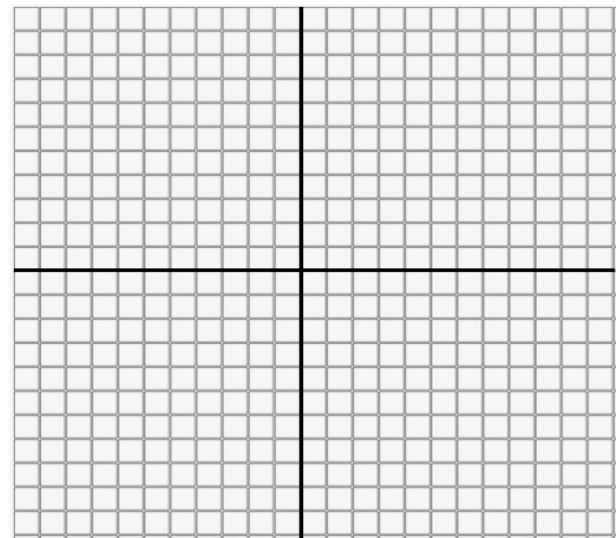
3. A chemical plant was found to be discharging toxic waste into a waterway. The state in which the chemical plant was located fined the company $125,000 plus $1,000 per day for each day on which the company continued to violate water pollution regulation.

   Express the total fine as a function of the number of days in which the company remains in non-compliance.

Burning Candle

4. The graph models the height in inches of a burning candle as the time, in hours, goes by.

   a) What is the slope of the line?

   b) What is the y-intercept of the line?

   c) Write a linear function for the graph, where x represents the time in hours and y represents the height in inches.
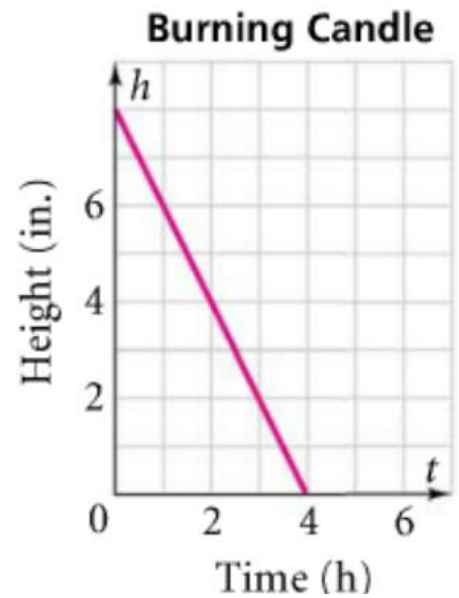
   d) Another 8-inch candle burns at a rate of 3 inches/hour. How would the graph for that candle compare with the one shown here?

5. Jabar will be charged an $8 fee to join the local swimming pool. Each time Jabar goes swimming, he'll be charged an additional $2.

   a) What will it cost Jabar if he swims …. 1 time? _____ 2 times? _____ 10 times? _____

   b) Write an equation (linear function) that models the situation.

   Let x represent the number of times Jabar goes to the pool. Let y represent the total amount of money Jabar spends by going to the pool x times.
   _____

   c) Graph the equation that was created in part b. Label the x and y-axis with appropriate numbers, as well as give titles to x and y-axis.
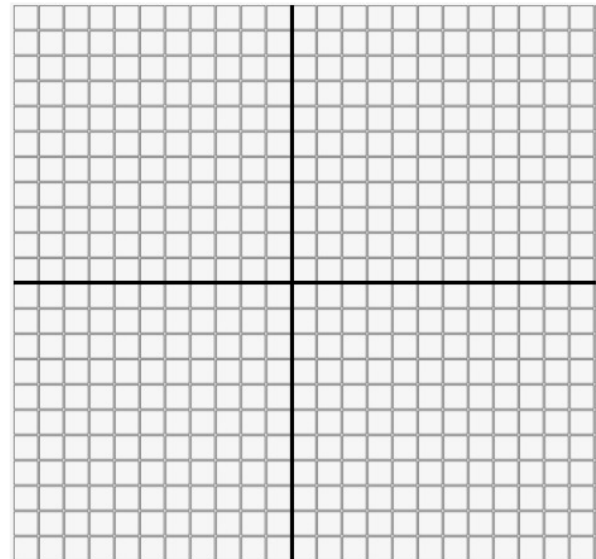
d) What is the slope for this equation and graph? _____

e) What is the y-intercept for this equation and graph? _____

6. Taylor and James each get summer jobs to save money. The amount of money Taylor has is given by the equation T= 5(3 + x),
   Where x is the number of hours she spends working.

   The amount of money James has is shown in the graph below.

   Who started with more money?