Initial Assessment

October 12, 2014

Warm Up Problem

Ashley, Britney, Charles, David, Erika, Frank, and Gary are having an argument about which day of the week it is. They speak as follows:

Ashley: The day after tomorrow is Wednesday.

Britney: No, it is Wednesday today.

Charles: You are both wrong; it is Wednesday tomorrow.

David: Nonsense. Today is neither Monday, Tuesday, nor Wednesday.

Ericka: I'm quite sure yesterday was Thursday.

Frank: No, tomorrow is Thursday.

Gary: All I know is that yesterday was not Saturday.

If only one of the remarks is true, what day of the week is it?

Arithmetic

1. Please write the results of the following divisions. Show your work, and if needed, include the remainders in your answers.

   (a) $1296 \div 16$

   (b) $2900 \div 151$

2. Please simplify the following expressions involving fractions.

   (a) $\frac{2}{9} + \frac{5}{9} =$

   (b) $\frac{4}{5} - \frac{1}{3} =$

   (c) $\frac{8}{3} \times \frac{2}{7} =$

(d) $\frac{8}{11} \div \frac{4}{3} =$

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

3. Use the order of operations to simplify the following expressions.

(a) $14 - 5 \times 2 + 4 =$

(b) $6 \times (4 - 2) \div 3 =$

(c) $18 \div (3 + 9 \div 3) - 3 \times 2 =$

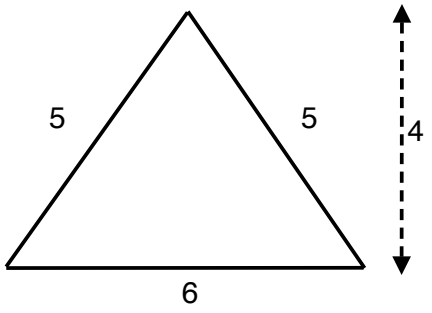
(d) $(4 + 2)^2 - 3 \times 2^2 =$

(e) $4 \div (3 - 1) \times (1 - 2) =$

Geometry

4. Please write down the areas and perimeters of the following shapes.

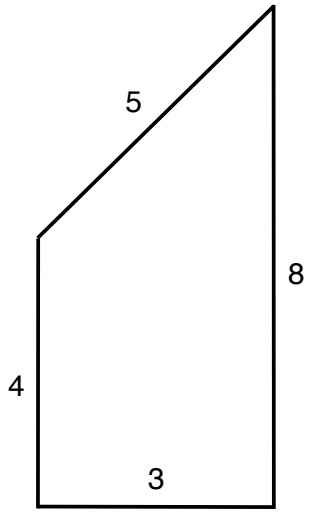
a)



Perimeter =

Area =

(b)



Perimeter =

Area =

5. Cory cuts a square piece of paper of area $16\,cm^2$ into smaller squares with side lengths half of the original side length. What is the area of one smaller square piece of paper? Make a picture to help you solve the problem.

6. A baker makes a cake that has a volume of $18\,in^3$. However, she realizes that the cake is too small, and decides to make a new cake double the dimensions of the original cake. What is the volume of the new cake?

Algebra

7. Please solve for the variable x in the following equations.

   (a) $5 + x = 13$

   (b) $2x + 3 = 9$

   (c) $\frac{x}{2} + 4 = 7$

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

(e) $\frac{2}{x} = \frac{1}{4}$

8. Emanuelle is having a bake sale, and is selling home-made muffins for \$2 per muffin. At the start of the day, Emmanuelle has \$10. Use d to represent the total amount of money Emmanuelle has, and m to represent how many muffins Emmanuelle has sold.

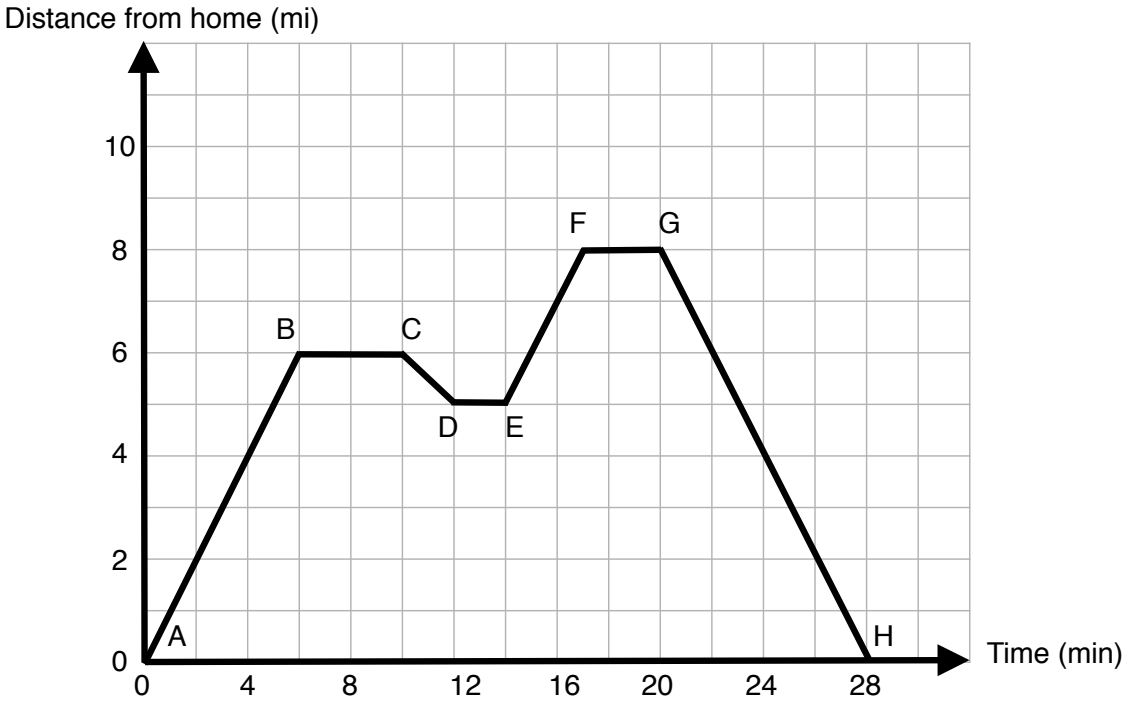
   (a) Write an expression that shows how much money Emmanuelle has (d) depending on how many muffins she sold (m).

   (b) How many muffins does she have to sell in order to have \$50?

   (c) By the end of the day, Emmanuelle sold 45 muffins. How much money does she have?

Graphs

9. Olga had to run some errands over the weekend, and the graph below shows her distance from home while running the errands. Please answer the questions below using the following graph:



(a) How far was Olga from her home at 10 minutes?

(b) How long did it take her to get from point E to point F?

(c) What is the speed at which she travelled going from point A to point B?

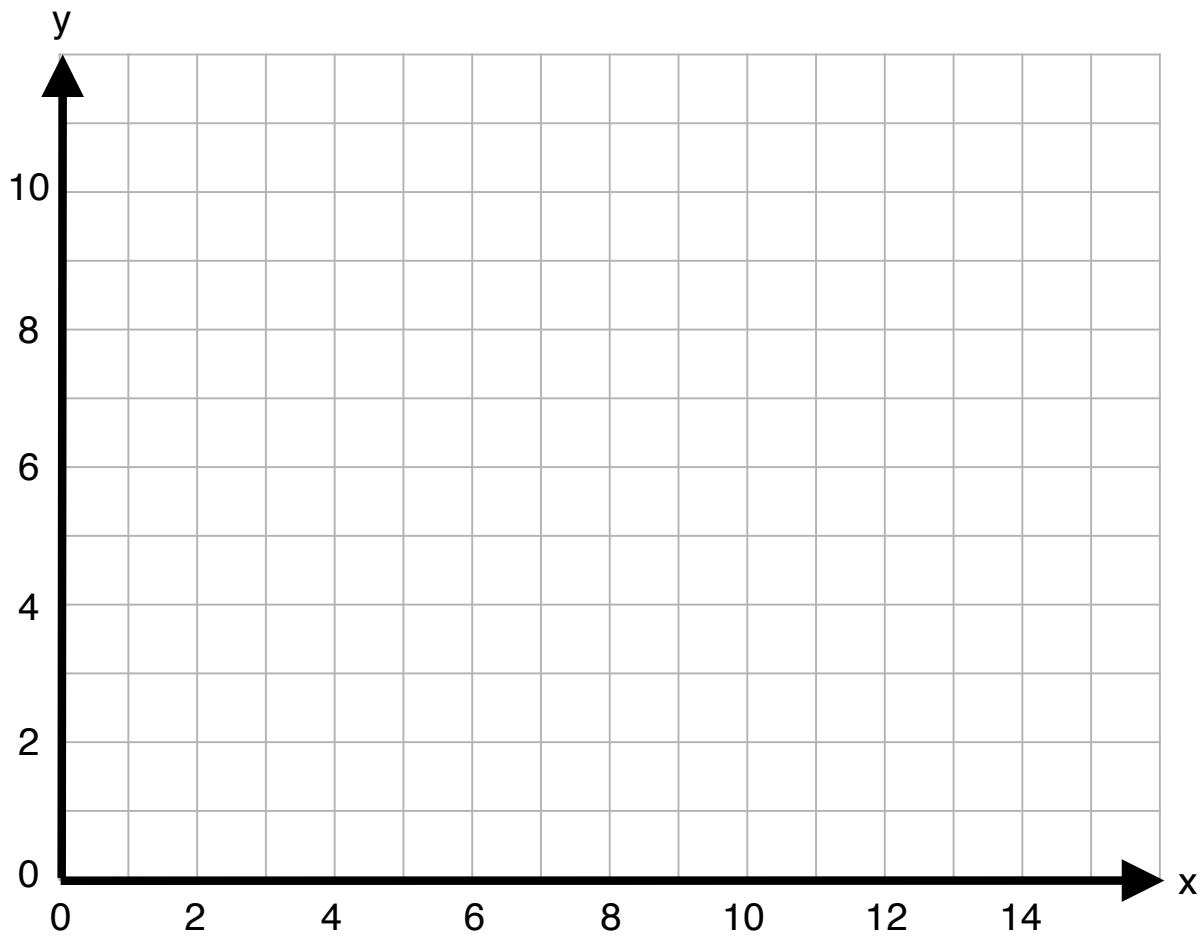
(d) What is the speed at which she travelled going from point D to point E?

(e) Before Olga left home, the mileage in her car was shown as $67,882$ miles. After running these errands, what will the mileage on her car show?

10. Please graph the following functions on the coordinate plane below. Use different colors for each graph.

    (a) $y = x + 2$

    (b) $y = 2x$

    (c) $y = x \div 2$

    (d) $y = 10 - x$