

**MATH 5: WORKSHEET 6**  
**FRACTIONS AND WORD PROBLEMS**

1. Simplify the following expressions

(a)  $\frac{2}{3}x + \frac{4}{3}(1 + x)$    (b)  $2.5x - 1.5(4 - x)$    (c)  $2(x - \frac{2}{3}) - (x + \frac{1}{2})$

2. Solve the following equations.

(a)  $\frac{3}{4}(x + 8) = 10$    (b)  $\frac{1}{2}(x + 1) = x - 3$    (c)  $\frac{1}{2}x + \frac{1}{3}x = x - \frac{1}{12}$

3. It takes 12 months for Santa Claus to prepare all the gifts for the upcoming Christmas. It would take 20 months for Santa's apprentice to do the same job. If they work together, how long will it take for them to prepare all the gift.

4. Pirate captain John can drink a barrel of rum in 14 days. If he drinks together with pirate Bill, they will finish the barrel in 10 days. How long would it take Bill to drink the barrel of rum?

5. A truck can cover distance between two cities in 10 hours. A fast car, which goes 10 miles per hour faster than the truck, can cover the same distance in 8 hours. What is the distance? [Hint: if the speed of the truck is  $x$  mph, then the distance is equal to  $10x$  miles. On the other hand....]

6. If you take half my age and add 7, you get my age 13 years ago. How old am I?

7. One can measure temperature using either the Fahrenheit scale (common in the US and Britain) or the Celsius scale (in most other countries). The relation between the two is given by

$$C = \frac{5}{9}(F - 32)$$

( $C$  in the temperature in Celsius,  $F$  – in Fahrenheit).

(a) Is there a temperature which gives the same value on both scales ( $F = C$ )?

(b) Is there a temperature which in Fahrenheit scale is twice as large as in Celsius ( $F = 2C$ ) ?

8. Andrew marked a point in the circle (not the center). Can you cut the circle in two parts and then rearrange them so that you again get a circle, but with the marked point now in the center? [Note: the cuts do not have to be straight lines.]

9. Solve the following puzzle (different letters stand for different digits):

$$\begin{array}{r} \text{THIS} \\ + \text{IS} \\ \hline \text{EASY} \end{array}$$