MATH 5: HANDOUT 7
MORE WORD PROBLEMS

No new material — we continued doing word problems with equations and reviewed once again how one solves equations involving fractions.

We solved the following problems in the class:

1. Max eats a jar of strawberry jam in 15 days, and Jeannie eats the same jar in 10 days. How many days will a jar of jam last if both Max and Jeannie eat from it?
2. Last year, Grandmother Ethel knitted blue scarves for all her grandchildren in 3 weeks. This year she wants to give them red scarves, and her daughter Mary will help her. If Mary worked alone, she would knit a full set of scarves in 11 weeks. When will they finish the job together? (The number of grandmother's grandchildren did not change over the year.)
3. It takes 2 days for a horse to finish 1 bale of hay, 3 days for a cow to eat the same amount of hay, and 6 days for a goat to do the same. In how many days would the three of them together consume 1 bale of hay?

<center>HOMEWORK</center>

1. Simplify the following expressions

    (a) $\frac{2}{3}x + \frac{4}{3}(1 + x)$

    (b) $2\frac{1}{2}x - \frac{1}{2}(4 - x)$

    (c) $2\left(x - \frac{2}{3}\right) - \left(x + \frac{1}{2}\right)$

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 gifts?

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. Jeannie and Max had the same number of cookies. Max gave Jeannie 2 of his cookies.
    (a) How many more cookies than Max does Jeannie have now?
    (b) If Max now has only half as many cookies as Jeannie, how many cookies did each of them have in the beginning?

6. The weight of a gold bar is two-thirds of itself plus 5 pounds. What is the weight of the gold bar?

7. 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....]

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

9. 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

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

(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 ($F = 2C$) ?

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

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  THIS
+   IS
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 EASY
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