Math 5b: **Homework #4**   **October 6, 2019**

1. Simplify the following expressions:

    (a) $3(2x - 1)$ (b) $2 - (1 - x)$ (c) $7x - (3x + 15)$

    (d) $\frac{3}{5}(x - 5 + 6)$ (e) $3(2x - 1) + x$ (f) $2a(a - 2) - a(a - 1)$

    (g) $(2x - 1)(x - 1)$ (h) $x - \frac{2}{5}x - (5 + \frac{2}{7}x - 8)$

2. Solve the equations:

    (a) $14x + 8 = 12 - 10x$ (b) $\frac{3}{4}x = \frac{3}{5}x + 3$

    (c) $3(3x - 1) = 2(2x + 11)$ (d) $5(x - 2) = 3x + 20$

    (e) x -3 = a   (f)   x : 5 = b   (g)* (x- 3) / 5 – a = b

3. A father is twice as old as his son. The sum of their ages is 48 years. How old is each of them?

4. (a) Show that $(a + 1)(a - 1) = a * a - 1$ (hint: use $(a + 1) = y$)
    (b) Without a calculator, calculate 199999×200001

5. An orange costs 2 cents more than an apple. A grapefruit costs as much as 3 oranges. A fruit basket consists of 10 apples, 5 oranges, and a grapefruit.
    (a) If the price of an apple is a, what is the price of an orange? A grapefruit? Simplify your expressions
    (b) If the fruit basket costs $1.96, how much does each fruit cost?

6. Remember for the problem below: Speed – V, Time – t, Distance – S; S = V * t

    Two secretaries, Barbara and Mary, need to type a document. Barbara can type 100 pages of the document in 4 hours. Mary types slower, so it would take her 5 hours to do this. How fast can they type the document, if they divide the work between the two of them in the most efficient way and the document's size is:

    a) 200 pages;
    b) 300 pages;
    c) * X pages. Explain your answer.

7. *The list below shows some dates written in Swahili:
       tarehe tatu Disemba jumamosi
       tarehe pili Aprili jumanne
       tarehe nne Aprili jumanne
       tarehe tano Octoba jumapili

tarehe tano Octoba jumatatu
　　tarehe tano Octoba jumatano

Here are their English translations (in a different order!):
　　October 5, Monday
　　April 2, Tuesday
　　October 5, Wednesday
　　October 5, Sunday
　　December 3, Saturday
　　April 4, Tuesday
Write the following dates in Swahili:
　　April 3, Wednesday; December 2, Sunday; December 5, Monday.