Math 4a. Homework 8.

Problems marked with * are more difficult.

1. What number should be placed instead of "?"

$?$ $:6$ ◯ $+\frac{1}{6}$ ◯ $\cdot\frac{8}{9}$ ◯ $-\frac{1}{9}$ $\frac{1}{3}$

$\frac{2}{5}$ $\cdot\frac{5}{6}$ ◯ $+\boxed{?}$ ◯ $-\frac{3}{8}$ ◯ $:1\frac{1}{4}$ $\frac{1}{2}$

$\frac{7}{12}$ $+\frac{1}{6}$ ◯ $-\boxed{?}$ ◯ $\cdot\frac{4}{5}$ ◯ $:\frac{3}{10}$ $1\frac{1}{3}$
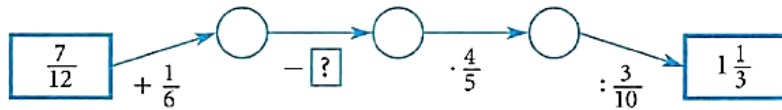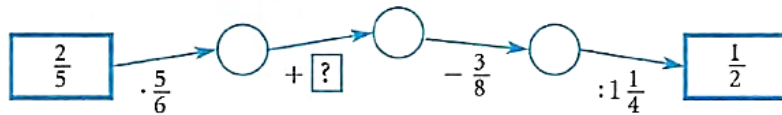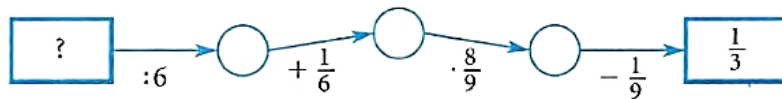
2. Compute (please, copy each problem into your notebook
   Example: $6 - 8 = -2$)

$6 - 8$	$-6 + 8$	$-8 + (-6)$
$-12 + 4$	$-4 - 2$	$21 - 28$
$-3 - 6$	$9 + (-8)$	$-5 - (-7)$
$-7 + 10$	$4 - 7$	$-37 + 21$
$10 + (-6)$	$-8 + 2$	$16 - 9$
$-9 + 15$	$10 + (-12)$	$-23 - 6$

3. Solve the following equations
   (*example*:
   $$y + \frac{1}{3} = \frac{1}{2}$$
   $$y + \frac{1}{3} - \frac{1}{3} = \frac{1}{2} - \frac{1}{3}$$
   $$y = \frac{1}{2} - \frac{1}{3} = \frac{3 - 2}{2 \cdot 3} = \frac{1}{6}$$

a) $b - \frac{1}{6} = \frac{1}{6}$,   b) $\frac{1}{6} + x = \frac{1}{2}$,   c) $c \cdot 4 = \frac{1}{5}$,   d) $a - \frac{4}{9} = \frac{1}{3}$

4. Put $+, -, \cdot, \div$ or parentasis to make the following statement thrue.
   example: $1\ 1\ 1\ 1\ -\ 1\ 1\ 1\ =\ 1000$

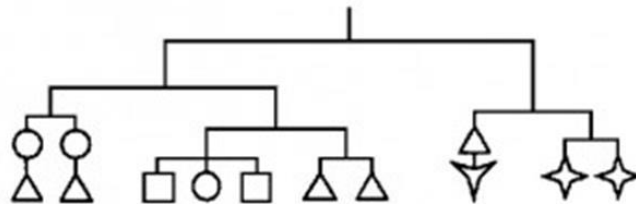a) $1\ 1\ 1\ 1\ 1\ 1\ 1\ =\ 1000$;

b) $3\ 3\ 3\ 3\ 3\ 3\ =\ 1000$;
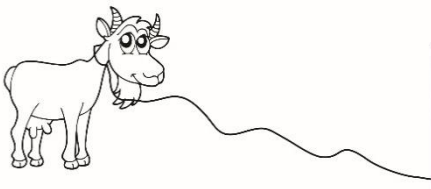
c) $5\ 5\ 5\ 5\ 5\ 5\ 5\ =\ 1000$;

d) $7\ 7\ 7\ 7\ 7\ 7\ 7\ 7\ =\ 1000$;

e) $9\ 9\ 9\ 9\ 9\ =\ 1000$.

5. On the picture below, every arm of the balance is in equilibrium. (The horizontal bars are suspended at their midpoints.) Identical shapes have identical masses. The mass of the square is 1 kg. What are the masses of the other shapes?

6. A goat is tied to a pole (or 2 poles) with a rope of length 3m. What shape it will graze?

Draw a picture in your notebook using 1 cm for 1m. The length of the rope is 3 m, the length of the string on the second picture is 5 m. Use a ruler and a compass!