

HOMEWORK 1
September 15, 2019

(All homeworks are to be written on a separate quadrille paper with sufficient details about how the problem was solved, unless clearly indicated that it is a practice page. Mathematical notations will be good, essays are not expected. Try solving every problem in the homework. Some problems are more difficult than the others. It is normal if you need to approach a problem several times to solve it. More difficult problems are marked with a *. If you didn't solve the problem, but tried, put your attempts in writing. It will give an indication of the direction you were heading into. Your homework solution is a necessary feedback to understand which material requires more attention.)

1. Write the following expressions as expressions with fractions:

a. $a \div 4 - 5 + b \div c = \frac{a}{4} - 5 + \frac{b}{c}$ (example)
b. $(a \div 4 - 5) + b \div c =$
c. $a \div 4 - (5 + b) \div c =$
d. $a \div (4 - 5 + b) \div c =$
e. $(a + 7) \div (a - 7) =$
f. $(32 \div a) \cdot (x \div y) =$

2. Three shelves together contain 39 books. Second shelf has 3 books more than the first. The third has twice as many books as the first shelf. How many books are there on each shelf? [Equation expected]

3. Find the LCM and GCD of the following numbers:

- 12 and 32
- 16 and 10;
- 9 and 12;
- 365 and 30;
- 204 and 30

4. Two bells ring together at 10:45 a.m. One bell rings every 9 minutes and the other every 12 minutes. When will they next ring together?

5. A boy is buying candy. If he buys 11 pieces of candy, he will have 15 cents left. If he tries to buy 15 pieces of candy, he will be 21 cents short. How much does one piece of candy cost? [Either way is fine: using equation or not]

6. Find the following sums (without using the calculator). [Try to do it in the most efficient way. Show this way with arrows, parenthesis, or crayons, your choice. Show intermediate calculations. No markers please.]

- a) $1 + 3 + \dots + 49$
b) $20 - 19 + 18 - 17 + \dots - 3 + 2 - 1$
c) $21 + 20 + 21 + 24 + 19 + 26$
d) $7 \times 19 + 7 \times 11$

7. *The list below shows the names of some numbers in an exotic (but real) language:

- 3 — re
11 — shine ikashma wan
22 — tu ikashma hotne
37 — arwan ikashma wan e hotne
47 — arwan ikashma tu hotne
93 — re ikashma wan e ahikne hotne

What number is written in this language as tu ikashma wan e re hotne?