

## MATH 5: ASSIGNMENT 2

SEPT 22, 2024

In mathematics and other sciences, we often use letters instead of numbers. Usually it is done to show that certain relationship will work for all numbers. Letters are also commonly used for unknown values. These letters are called **variables**.

Expressions involving both numbers and variables are called **algebraic expressions**.

Examples:  $3a$ ;  $7b + 8$ ;  $357 + 10x$ ;  $(65z - 459) \div 4$

In algebraic expressions we omit the sign of multiplication between a number and a variable. Instead of  $7 \times b$  we write  $7b$ , instead of  $10 \times z$  we write  $10z$ . In products, a number goes first, and then goes a variable. We do not write  $k \times 10$ , we write  $10k$ .

1. Compute:

a.  $-7 - (-9) =$

b.  $-(-6 + (-4)) =$

c.  $-3 - (7 + (-6)) =$

d.  $-3 - (-4) + (-5) =$

e.  $-(-2) + 5 =$

f.  $-\frac{3}{4} - (-1\frac{1}{4}) =$

2. Solve equations:

a.  $13x + 11 = 2(6x + 1)$

b.  $-3x + 8 = -4x - 2$

3. Compute fractions do not forget to simplify!

a)  $\frac{2}{9} + \frac{5}{6} =$

b)  $2\frac{5}{8} - \frac{3}{4} =$

c)  $\frac{7}{12} + \frac{5}{33} =$

d)  $\frac{5}{16} + \frac{3}{64} =$

e)  $\frac{1}{24} + \frac{1}{40} =$

f)  $2\frac{2}{9} - \frac{1}{3} =$

4. Open parenthesis and simplify algebraic expressions:

a.  $3a + 2(a + 2b) - 2b =$

b.  $3(x - 3y) - y =$

c.  $a - (a + 2b) - 2b =$

5. A messenger is sent from one city to another; he can travel 40 km a day. Next day, another messenger is sent, who can travel 45 km a day. When will he overtake the first messenger? [Either way is fine: using equation or not]

6. \*\*Cut a triangle into 4 triangles, any two of which have a common boundary (not just a point, but a whole segment!). [Draw a triangle using a ruler, show your cuts using a ruler.]