MATH 5: WORKSHEET 3
ALGEBRAIC EXPRESSIONS

1. Compute:

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

(b) $3 + (-6) + (-7) =$

(c) $(-3) + 5 + (-7) =$

2. Compute:

(a) $(-6) \div (-2) + 3 =$

(b) $(-2) \div (-3) =$

(c) $(-4) \times (-7) \div 9 =$

3. Solve the following equations:

(a) $(-2) \times x = -7$

(b) $(-3) \times x + 2 = x - 18$

4. Simplify the following expressions:

(a) $2(x + y) - 2(x - y)$

(b) $1 - 2(1 - 2(1 - 2x))$

5. Solve the following equations:

(a) $5(x - 2) = 25$

(b) $4x = 2x + 8$

(c) $(-2x) + 3 - (-5x) - (-7) = -(-1)$

6. Solve the equations

(a) $x - 12 = -10$

(b) $z + (-6) = -15$

7. Find the value of the following expressions. [Hint: in some of them, you can use the laws above to simplify the computation]

(a) $(89 + 7) \div 2 + 16 \times (6 - 3)$

(b) $7 + 8 \times 11 + 8 \times 39$

(c) $3 \times 29 + 11 + 9 + 3 \times 51$

1. John has three children, Andrew, Ben, and Charlie. Ben is 3 years older than Andrew. Charlie is twice as old as Ben, and John's age is equal to the sum of his children's ages plus 5. If we use letter a to denote Andrew's age, can you write algebraic expressions for ages of Ben, Charlie, and John? Try to write these expressions in the simplest possible way.

2. At the Math Olympiad students had to solve 10 problems. For each right answer they got 5 points, and for each wrong answer they lost 3 points. How many problems did Mark solve correctly if for 10 problems he got 10 points?

3. A lumberjack is cutting logs into shorter ones, to be used as firewood later. He started with 15 logs (of different lengths) and made 24 cuts. Can you find out how many logs he ended up with?

4. A beaker, filled with to the brim with water, weighs 5 lbs. The same beaker filled half way weighs 3.25 lbs. How many pounds of water can the beaker hold?

5. Which number is bigger? 333333×444444 or 222222×666667?

6. Given a triangle ABC with $\angle B = 90°$ and $AB = BC = 1$, and a point P chosen at random on the hypotenuse AC, can you tell what the sum of the distances from P to AB and from P to BC are?