

**MATH 6: HANDOUT I
REVIEW OF MATH 5**

MATH 6 PROGRAM

Throughout the year we will cover the following topics:

- Logic and logical expressions
- Set Theory
- Combinatorics: permutation, number of subsets, etc.
- Basics of Probability
- Geometry and Ruler and Compass constructions
- Arithmetic and Geometric sequences

To do this successfully, we need to review some important concepts that you learned in Math 5.

1. FRACTIONS AND ALGEBRAIC EXPRESSIONS

1. Evaluate the following expressions:

$$\frac{3}{2} + \frac{2}{6} =$$

$$\frac{1}{5} + \frac{2}{7} =$$

$$\frac{3}{4} - \frac{1}{6} =$$

$$\frac{2}{7} \times \frac{7}{4} =$$

$$\frac{5}{3} \div \frac{1}{9} =$$

2. Rewrite each of the expressions below in the simplest possible form, by collecting the like terms if possible:

$$2x + 7 + 5x + 2 + 3x =$$

$$3x + 9 + 5xy + 2xy + 3 =$$

$$2a(a - 2) - a(a - 1) =$$

$$(2x - 1)(x + 1) =$$

2. EQUATIONS AND WORD PROBLEMS

3. Solve the following equations:

(a) $3(3x - 1) = 2(2x + 11)$

(b) $5(x - 2) = 3x + 20$

(c) $2(x - 7) = x + 11$

4. If you take half my age and add 7, you get my age 7 years ago. How old am I?
5. A boy had a bag of apples. He gave $\frac{1}{2}$ of them to his parents, $\frac{1}{5}$ to his brother, $\frac{1}{4}$ to his sister and the last apple he ate himself. How many apples did he originally have?

3. ABSOLUTE VALUE

6. Solve the following equations. Remember that this equation will have two solutions due to the absolute value.

(a) $|x - 8| = 12$

(b) $|6x - 1| = 3$

4. POWERS

7. Simplify the following expressions:

(a) $\frac{(x^2y^2)^3 \cdot x^3}{x^2y^5} =$

(b) $\frac{x^2y^2x^{-3}}{x^2} =$

(c) $\frac{5^83^67^2}{15^67^4} =$

8. Let $a = 2 \times 10^8$ and $b = 10^5$. Compute:

(a) $a^2 \cdot b =$

(b) $\frac{a}{b} =$

(c) $a^2/b^3 =$