The National
Orthodox School
Shmaisani

Subject: Mathematics

First Exam Second Semester / Remedial Plan

Name: Answers **Grade-Section:** 8 CS

Date: **Teacher:** Zain Hattar

Objective: Revise simplifying expressions using laws of indices, simplifying algebraic fractions, finding the product of two linear expressions, expanding, difference of two squares, perfect squares, substituting into expressions and formulae.

Question 1

Simplify. Write with a single positive index.

$a^{-4} \times a^{-3} \times a^{15}$

a^{8}

$b^{5} \times b^{12} \div b^{20}$

$b^{-3} = \frac{1}{b^{3}}$

$27a^{8} \div 9a^{-2}$

$3a^{10}$

$(3b^{4})^{-8}$

$3^{-8}b^{-32} = \frac{1}{3^{8}b^{32}}$

$9(ab^{9})^{2}$

$9a^{2}b^{18}$

Question 2

Collect like terms together and simplify.

- $-7y^2 + 3y^2 - 2w + 10w - 8w + 2m^2$

$-4y^2 + 2m^2$

- **45cd + ab – 6ab – 5cd**

40cd - 5ab

Question 3

Write as a single fraction in the simplest form. Show your work!

- $\frac{7}{y} + \frac{2y}{3}$

$\frac{7}{y} \overset{\times 3}{\underset{\times 3}{}} + \frac{2y}{3} \overset{\times y}{\underset{\times y}{=}}$

$$\frac{21}{3y} + \frac{2y^2}{3y} = \frac{21 + 2y^2}{3y}$$

- $1 - \frac{3}{w} =$

$$\frac{W}{W} - \frac{3}{W} = \frac{W-3}{W}$$

Question 4

Simplify the following algebraic fractions. Show your work!

- $\frac{6(a+6)}{36(a+6)} = \frac{6}{36} = \frac{1}{6}$

- $\frac{24x^2+20x}{32x} = \frac{4x(6x+5)}{32x} = \frac{6x+5}{8}$

Question 5

Expand and simplify to the simplest form. Show your work!

- $3(x-2) = 3x - 6$

- $(x-10)^2 = (x-10)(x-10)$
  $= x^2 - 10x - 10x + 100$
  $= x^2 - 20x + 100$

Question 6

Find the value of

- **4abc**
  when a = -2 , b = 3 , c = 1

$4abc = 4 \times -2 \times 3 \times 1$

$= -24$

- **$a^2 + 2a + 10$**
  when a = -3

$a^2 + 2a + 10$

$(-3)^2 + 2 \times -3 + 10$

$9 - 6 + 10$

13

Question 7

Complete the following statements:

$x^2 - 49 = (x + \boxed{7}\ )(x - \boxed{7}\ )$

$x^2 - 36 = (x + \boxed{6}\ )(x - \boxed{6}\ )$

$x^2 + 8x + 16 = (x + \boxed{4}\ )^2$

Thank you!