Year 9 Term 1 Test

Student Name: _____	**Grade**: _____
Date: _____	**Score**: _____

- Answer the questions in the spaces provided on the question sheets.
- If you run out of room for an answer, continue on the back of the page.
- This test has 16 questions, for a total of 100 marks.
- Do not use a calculator.
- Attempt all 16 questions.
- Time allowed: 45 minutes.

Page:	1	2	3	4	5	6	Total
Points:	14	14	15	21	20	16	100
Score:							

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One and two step equation questions (Questions 1 through 3)

Question 1 ..... (6 points)

Solve each of these equations, giving your answers as fractions or mixed numerals, in its simplest form.

(a) $7p + 27 = -18$ [2]

(b) $9q^2 = 16$ [2]

(c) $81x^2 + 6 = 10$ [2]

Question 2 ..... (4 points)

36 less than five times a number equals 124. What is the number?

Question 3 ..... (4 points)

If $x + 3y^3 = 1$, what is the value of y then $x = 25$?

Equations with pronumerals on both sides (Questions 4 through 6)

Question 4 ..... (6 points)

Solve the following equations:

(a) $8 - 6x = 12 + 4x$ [2]

(b) $1.2y - 2.6 = 2.8y + 4.2$ [2]

(c) $-6 - 6z = 3 - 12z$ [2]

Question 5 ..... (4 points)

Six times a number equals 24 less than nine times the number. What is the number?

Question 6 ..... (4 points)

Two more than eight times a number is equal to the number increased by 100.

What is the number?

Equations with grouping symbols (Questions 7 through 9)

Question 7 ..... (7 points)

Solve the following equations:

(a) $2(3y - 5) + 4(9 + y) = 166$ [2]

(b) $4(5x + 3) - 4(6x - 5) = 0$ [2]

(c) $3(4 + 2x) + 2(5x - 9) - (3 + 8x) = 7$ [3]

Question 8 ..... (4 points)

Two brothers are presently 2 years old and 14 years old respectively. How many years will have to pass before the elder brother is $2\frac{1}{2}$ times the age of younger brother?

Question 9 ..... (4 points)

Six years ago, John was twice the age of Tom. At present, John is 12 years older than Tom. Find the sum of the ages of the two men.

Equations with one or more than one fraction

Question 10 ..... (21 points)

Solve the following equations:

(a) $\frac{x+9}{4} = x$ [2]

(b) $\frac{9+8y}{7} + 6 = 13$ [3]

(c) $3y - 12 = \frac{2}{3}y + 2$ [4]

(d) $\frac{3x}{5} + \frac{x}{2} = 44$ [4]

(e) $\frac{a-3}{12} = \frac{1}{4}$ [4]

(f) $\frac{1}{2}(b-3) + \frac{3}{5}(b+1) = \frac{2}{3}$ [4]

Evaluate the subject of a formula

Question 11 ..... (8 points)

Find the value of the subject in each formula given that:

(a) If $y = mx + b$ when m = 4, x = 8 and b = -5. [4]

(b) If $R = \sqrt{a^2 + b^2}$, find R when a = 2, b = $\sqrt{5}$. [4]

Changing the Subject of a Formula

Question 12 ..... (12 points)

Transpose each formula so that **y** is the subject:

(a) $x = 3(y + z)$ [4]

(b) $c = \frac{a-by}{y-b}$, where a, b and c are constants. [4]

(c) $a = 2\pi\left(b + \frac{y}{2}\right)$, where a and b are constants. [4]

Problem Solving (Questions 13 through 16)

Question 13 ..... (4 points)

If the numerator and denominator in the fraction $\frac{3}{11}$ are increased by a certain number, the resulting fraction would then be $\frac{2}{3}$. Find the number.

Question 14 ..... (4 points)

Eight more than three-quarters of a number is 32. What is the number?

Question 15 ..... (4 points)

A number added to a half itself the result is $\frac{1}{6}$. What is the number?

Question 16 ..... (4 points)

If $d = \frac{2}{3}t^2$, find a possible value of t when $d = 2400$.