



June 2011

Paper 1

Grade 9

QUESTION 1

Simplify and write your answers with positive exponents:

- 1.1 $2(-3a^2b)^2$ [3] 1.2 $\frac{-4x^5y^{-2}}{2x^{-1}y}$ [3]
- 1.3 $\sqrt{\frac{16x^{16}}{25y^4}}$ [2] 1.4 $7xy^0 - (7xy)^0$ [2]
- 1.5 $2b^n \times 2^3b^n$ [2] /12/

QUESTION 2

- 2.1 $5a - 4a \div 2 + 2a + 6a \div 3$ [3]
- 2.2 The funds raised for a few charity organizations are $(4x^3 - 2x^2 + 8x)$. The funds will be shared equally amongst a total of $(2x)$ charities. Determine the share (in terms of x) that each charity will receive. [4] /7/

QUESTION 3

Simplify:

- 3.1 $-3a^2(a^2 - 2a)$ [2] 3.2 $(a - 2b)^2$ [3]
- 3.3 $(a - b)(2a^2 - ab + b^2)$ [4] 3.4 $(x^3 - y)(x^3 + y)$ [2]
- 3.5 The length of a rectangle is $(2x - 3y)$ and the breadth is $(2y - 4x)$. Determine the area of the rectangle in terms of x . [4] /15/

QUESTION 4

Solve for x :

- 4.1 $4(x - 1) - 5(2x - 1) + 17 = 0$ [5]
- 4.2 $\frac{x}{2} - x = \frac{x}{3} - 20$ [5]
- 4.3 $\frac{3x + 5}{4} = 7 + \frac{x - 5}{2} - \frac{5x - 13}{6}$ [7]
- 4.4 Set up an equation and hence solve the equation to determine the following number.
The sum of a number and two thirds of the same number is 50. [4] /21/

QUESTION 5

Factorise:

5.1 $8a^2 - 4a^3$ [2] 5.2 $(a - b) - 4a(a - b)$ [2]

5.3 $a^2 - 14a + 45$ [2] 5.4 $\frac{1}{2}a^2 - 2$ [3]

5.5 $2a^4 - 24a^2 + 72$ [4]

5.6 Simplify the following using factorization. Show all working.

$50^2 - 49^2$ [3] /16/

QUESTION 6

Simplify the following

6.1 $\frac{3x^4}{20y^5} \div \frac{3x^2}{10}$ [3] 6.2 $\frac{4x^2 - 1}{(2x + 1)(1 - 2x)}$ [3]

6.3 $\frac{x^2 - 7x + 12}{2x^2 + 10x} \times \frac{x^2 - 25}{x^2 - 9}$ [6] 6.4 $\frac{x}{2} + \frac{2x}{3} - \frac{x}{4}$ [3]

6.5 $\frac{1}{2x} - \frac{1}{3x} + 1$ [3] /18/

QUESTION 7

7.1 The equation of a straight line is given as $y = 2x - 4$.

7.1.1 Write down the gradient and the y-intercept of the straight line. [2]

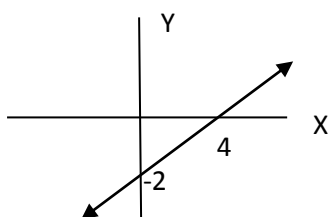
7.1.2 Hence, draw a graph of the line using any method. [3]

7.2 Draw neat rough sketches of the following lines.

7.2.1 $x = 2$ 7.2.2 $y = -4$

7.2.3 $y = -\frac{x}{4}$ [4]

7.3 Determine the equation of the following graph [2] /11/



TOTAL : 100

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