

Maths Form 2 ANSWERS

1. Given a:b = 2:3 and b:c = 4:8 find a:b:c. (2 marks)
a:b:c

(2:3)4

(4:8)3

m1

8:12:24

2:3:6

A1

2. Using mathematical tables to find;

0.0912^3

(2 marks)

$(9.123 \times 10^{-2})^3$

758.6×10^{-6}

7.586×10^{-4}

3. Solve for x in the equation.

$27^x \times 3^{(2x-2)} = 9^{(x+2)}$

(3 marks)

$3^{3x} \times 3^{(2x-2)} = 3^{2(x+2)}$

M1 *expressing in index form*

$3x + 2x - 2 = 2x + 4$

M1 *relating index*

$3x = 6$

$x = 2$

A1 *C.A.O*

4. Simplify: $\frac{512^{\frac{4}{3}} \times 27^{\frac{-2}{3}}}{128^2 \times 9^{-2}}$ (4 marks)

$$\frac{512^{\frac{4}{3}} \times 27^{\frac{-2}{3}}}{128^2 \times 9^{-2}} = \frac{(2^9)^{\frac{4}{3}} \times (3^3)^{\frac{-2}{3}}}{(2^7)^2 \times (3^2)^{-2}}$$

M1

$$= \frac{2^{12}}{2^{14}} \times \frac{3^{-2}}{3^{-4}}$$

M1

$$= \frac{1}{4} \times \frac{9}{1} = 2\frac{1}{4}$$

5. Use logarithms to 4 decimal places to evaluate:

(4 marks)

$$\left(\frac{0.7841 \times \sqrt{0.1356}}{\text{Log } 84.92} \right)^{\frac{1}{3}}$$

No	Std form	Log
0.7841	7.841×10^{-1}	$\overline{1.8944}$
$\sqrt{0.1356}$	1.356×10^{-1}	$\overline{1.1323} \times \frac{1}{2} +$ $\overline{1.5662}$
$\text{Log}84.92(1.9290)$	1.929×10^0	$\overline{1.4606}$ $\underline{0.2853} -$
	5.310×10^{-1}	$\overline{1.1753} \times \frac{1}{3}$ $\overline{1.7251}$

=0.5310

6. Use squares, square roots and reciprocals tables only to evaluate;

(4 marks)

$$\frac{3}{\sqrt{42.15}} + \frac{4}{(3.152)^2}$$

$$\sqrt{42.15} = 6.4923$$

$$3.152^2 = 9.9351$$

$$\frac{3}{6.4923} + \frac{4}{9.9351}$$

$$3 \times 0.1540 + 4 \times 0.1007$$

$$0.462 + 0.4028$$

$$= 0.8648$$

7. Find the equation of a line through point (5, -1) and perpendicular to line $4x + 2y - 3 = 0$.
(4 marks)

$$4x + 2y = 3$$

$$2y = -4x + 3$$

$$y = -2x + \frac{3}{2}$$

$$\text{Gradient } (m_1) = -2$$

$$m_1 \times m_2 = -1$$

$$-2 \times m_2 = -1$$

$$m_2 = \frac{-1}{-2} = \frac{1}{2}$$

$$(x, y) (5, -1)$$

$$\frac{y - (-1)}{x - 5} = \frac{1}{2}$$

$$y + 1 = \frac{1}{2}(x - 5)$$

$$y = \frac{1}{2}x - \frac{5}{2} - 1$$

$$y = \frac{1}{2}x - 3\frac{1}{2}$$

8. Four towns **P**, **Q**, **R**, and **S** are such that the town **Q** is 120 Km due to East of town **P**.

Town **R** is 160km due north of town **Q**, town **S** is on a bearing of 330° from **Q** and on a bearing of 300° from **R**.

- a) Show the relative position of towns **P**, **Q**, **R**, and **S**.

Take the scale of 1cm to rep. 50km.

(5mks)

drawing

- b) Use the drawing to determine

- i) The distance **SP** in Km

(2mks)

$$i) 4.9 \times 50 = 245 \text{ Km}$$

MIAI

ii) The bearing of **S** from **P**
356

(1mk)

BI