

FORM FOUR CLUSTER KCSE MODEL 7

MATHEMATICS PAPER 1 ANSWERS

SECTION I (50 Marks)

1.

$$\frac{\sqrt{5184}}{6 \times -18 \div 9 + (5 - -3)}$$

$$\begin{array}{r}
 5184 \\
 \wedge \\
 2 \quad 2592 \\
 \wedge \\
 2 \quad 1296 \\
 \wedge \\
 2 \quad 648 \\
 \wedge \\
 2 \quad 324 \\
 \wedge \\
 2 \quad 162 \\
 \wedge \\
 2 \quad 81 \\
 \wedge \\
 3 \quad 27 \\
 \wedge \\
 3 \quad 9 \\
 \wedge \\
 3 \quad 3
 \end{array}$$

$$(2^6 \times 3^4)^{\frac{1}{2}} = 2^3 \times 3^2 = 72$$

$$\text{Denominator } 6 \times -18 \div 9 + 5 - -3 = 6 \times -2 + 8$$

$$= -12 + 8 = -4$$

$$\frac{72}{-4} = -18$$

$$3x + 2y = 32\,500$$

$$4x + 3y = \frac{19}{13} \times 32\,500 = 47\,500$$

$$3x + 2y = 32\,500 \times 3$$

$$4x + 3y = 47\,500 \times 2$$

$$9x + 6y = 97\,500$$

$$8x + 6y = 95\,000$$

$$x = 2\,500$$

$$y = 12\,500$$

Goat bought at Ksh 2500

Cow “ “ Ksh 12,500

3.

$$\frac{x(1-3y)}{3x^2(1-9y^2)}$$

$$\frac{x(1-3y)}{3x^2(1-3y)(1+3y)}$$

$$\frac{1}{3x(1+3y)}$$

4. Mid point (1,4)

$$\text{gradient } PQ = \frac{-4}{4} = -1$$

$$M_1 \times M_2 = -1 \quad M_2 = 1$$

$$\frac{y-4}{x-1} = 1$$

$$y-4 = x-1$$

$$y-x = x-1$$

$$y-x = 3$$

5.

$$\pi(x+1.5)^2 - \pi x^2$$

$$\pi(x^2 + 3x + 2.25) - \pi x^2$$

$$\pi(2.25 + 3x)$$

6.

$$\text{Distance} = \frac{1}{2}(1+6)10\text{ m}$$

$$= 35\text{ m}$$

Total time 6 sec .

$$\text{average velocity } \frac{35}{6} \text{ m / s}$$

$$= 5.833 \text{ m / s}$$

7.

$$50,000 \times \frac{1.5}{100} = \text{Ksh}750$$

$$100,000 \times \frac{2.5}{100} = \text{Ksh} 2500$$

$$75,000 \times \frac{4}{100} = \text{Ksh} 3000$$

$$\text{Salary} = \text{Ksh} 12,000$$

$$\text{Total pay} = \text{Ksh} 18,250$$

8.

$\angle DCA = \angle CAB \rightarrow$ Alternate angles

$AC = BD \rightarrow$ Diameter of circle

$\angle CDA = \angle ABC = 90^\circ$ $\angle$ s subtended by diameter at circum. $\therefore \Delta$

Hence AAS $\rightarrow$

ΔACD is congruent to ΔABC .

9.

$$x \geq -1$$

$$(2,0)(0,-2) \Rightarrow \frac{-2-0}{0-2} = 1$$

$$\frac{y+2}{x} = 1 \quad y+2 \geq x$$

$$(0,3)(2,0) \quad \frac{0-3}{2-0} = -\frac{3}{2}$$

$$2y = -3x + 6$$

$$2y < -3x + 6$$

10.

$$a) 49.5 - 59.5$$

$$b) 49.5 + \frac{30.5 - 11}{14} \times 10$$

$$49.5 + 6.786 = 56.3$$
