FORM 2 TUNE UP TERM 2 2013

Attempt all questions MARKING SCHEME (2)

(1) use tables of square roots and reciprocals, evaluate to 3 decimal places (4 mks)

$$\frac{3}{\sqrt{0.0416}} + \frac{12}{49.27}$$

$$3 \times \frac{1}{\sqrt{0.0416}} + 12 \times \frac{1}{49.27}$$

$$3 \times \frac{1}{0.204} + 12 \times \frac{1}{49.27}$$

$$3 \times 4.902 + 12 \times 0.0203$$

$$14.706 + 0.2436$$

$$14.9496$$

$$= 14.950$$

(2) Solve

$$4x + 12y = 11 \qquad \text{(4mks)}$$

$$(12x - 4y = 3)3$$

$$\frac{4x + 12y = 11}{36x - 12y = 9}$$

$$40x = 20$$

$$x = \frac{20}{40}$$

$$x = \frac{1}{2}$$

$$2 + 12y = 11$$

$$12y = +9$$

$$y = \frac{9}{12}$$

$$y = \frac{3}{4}$$

$$x = \frac{1}{2}$$

(3) The angle of elevation of the tower from a point X on the horizontal is 28.5°. From another point y 8 metres nearer to the base of the tree, the angle of elevation of the top of the tower is 37.2° By scale drawing find the height of the tree. (4mks)

$$H = 15.26 \pm 0.5$$

$$540 = 2 \times 2 \times 5 \times 3 \times 3 \times 3.$$
$$50 = 2 \times 5 \times 5$$

④ without using mathematical tables or a calculator evaluate leaving your answer in prime factor form (4mks)

$$\frac{\left(2^2 \times 3 \times 5\right)^3}{\sqrt[3]{540 \times 50}}$$

$$\frac{2^6 \times 3^3 \times 5^3}{\left(2^3 \times 5^3 \times 3^3\right)^{1/3}}$$

$$\frac{2^6 \times 3^3 \times 5^3}{2 \times 5 \times 3}$$

$$2^5 \times 3^2 \times 5^2$$

⑤ Ali is eight times older than musa who is 30yrs younger than Juma. Five years ago the sum of all their ages was 95yrs. Find the age of Ali when juma was born. (4mks)

$$J = x$$
$$M = (x-30)$$
$$A = 8(x-30)$$
$$x + x - 30 + 8(x-30) + 15 = 95$$
$$2x - 30 + 8x - 240 = 80$$
$$10x - 270 = 80$$
$$10x = 350$$
$$x = 35$$
$$J = 35 \text{ yrs.}$$
$$M = 5 \text{ yrs.}$$

$$A = 40$$
$$A = 40 - 35$$
$$A = 5 \text{ yrs.}$$

6. The Sum of Interior angles of two polygons is $1620°$. Given that one polygon is one side less than the other, find the number of sides in each polygon (3mks)

$$(2n-4)90 + \{2(n-1) - 4\}90 = 1620$$

$$(2n-4) + (2n-2-4) = 18$$

$$4n = 18 + 10$$

$$4n = 28$$

$$n = \frac{28}{4}$$

$$n = 7 \& 6$$

7. Given the points $(-4, 2)$ and $(6, -2)$, obtain the equation of the perpendicular bisector and hence the co ordinates of its y-Intercept (4mks)

$$\frac{2--2}{-4-6} = \frac{4}{-10} = -\frac{2}{5}$$

$$G_1 = -\frac{2}{5}$$

$$G_2 = \frac{5}{2}$$

$$\left(\frac{-4+6}{2}, \frac{2+2}{2}\right)$$

$$(1, 0)$$

$$\frac{y-0}{x-1} = \frac{5}{2}$$

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

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

$$y = -2.5$$

8. Solve the equation (3mks)

$$8^x + 2^{2x} + 3 = 35$$

$$2^{3x} + 2^{2x} = 2^5$$

$$5x = 5$$

$$x = 1$$

⑥ The Sum of Interior angles of two polygons is 1620°, Given that one polygon is one Side less than the other, find the number of Sides in each polygon (3mks)

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