

**FORM 2 MATHEMATICS
APRIL HOLIDAY ASSIGNMENT - 2024**

Instructions (Answer all the questions)

1. Solve for x in the equation. (3mks)

$$32^{(x-3)} \times 8^{(x+4)} = 64 \div 2^x$$

2. Determine the value of y in (3mks)

$$7^{(2y-1)} = 2401$$

3. Solve for x and y (4mks)

$$3^{2x-y} = 27$$

$$4^x \div 16^y = 1$$

4. Use tables to evaluate: (6mks)

a) $\frac{3}{0.6735} + \frac{13}{0.156}$

b) $\frac{142.7 \times 62.3}{22.83 \times 17.31}$

5. A cylindrical metal bar of height 12cm and radius 3.5cm is melted down and recast into a cubic block. Find the length of the side of the cube, giving your answer to one decimal place (3mks)

6. a) A line L_1 passes through the point (3, 3) and (5, 7). Find the equation of L_1 in the form $y=mx+c$, where m and c are constants. (3mks)

b) Another line L_2 is perpendicular to L_1 and passes through (-2, 3). Find the equation of L_2 (3mks)

c) The x-intercept of L_2 (1mk)

d) Determine the point of intersection of L_1 and L_2 (3mks)

6. a) A straight line L_1 whose equation is $3y-2x=-2$ meets the x-axis at R. Determine the coordinates of R (2mks).

b) A second line L_2 is perpendicular to L_1 at R. Find the equation of L_2 in the form $y=mx+c$, where m and c are constants. (3mks)

c) A third line L_3 passes through $(-4, 1)$ and is parallel to L_1 . Find:

I. the equation of L_3 in the form $y=mx+c$, where m and c are constants. (2mks)

II. the co-ordinates of point S, at which L_3 intersects L_2 . (3mks)

7. (i) On a graph plot the points A(1, 1), B(2, 2), C(5, 1) and D(4, 0). Join the points with straight lines. (2mks)

(ii) On the same axes, locate and plot the points $A'B'C'D'$ the images of ABCD under an enlargement center at the origin and scale factor -2 (2 mks)

(iii) Draw the quadrilateral $A'B'C'D'$ and state the co-ordinates of its vertices. (2 mks)

(iv) Locate and plot points $A''B''C''D''$ the images of ABCD under a rotation of $+90^\circ$ about the origin. Hence draw the quadrilateral $A''B''C''D''$ (3 mks)

(v) State the co-ordinates of $A''B''C''D''$ (1 mk)

8. A triangle whose vertices are P(2, 2), Q(4, 2) and R(4, 4) is mapped onto a triangle whose vertices are P'(4,-2), Q'(2,-2) and R'(2,-4) under a rotation. Find:

a) the centre and angle of rotation (3mks)

b) the images of points (0, 4) and (-1, 2) under the same rotation. (3mks)