s.2 practice questions

Exercise 1.

1. I‟m thinking of a number. I subtract 6 and multiply by -4. The answer is -8. What is my number?

2. What is y if: (a) 3(y + 4) = 15. (b) 5(y + 3) = 55.

3. Find e if: $\frac{(e+7)}{3} = 4$

4. Find g when: (a) 3(g – 1) = 21 (b) 12(g – 6) = 108

5. I think of a number and multiply it by 4; the result is the same as if I added 24 to the original number. Find the number.

6. Solve the equations: (a) 29 = 7p + 8 (b) ½ x + 5 = 13

   (c) 5 ½ = t + 1¼.

7. The sum of the angles of a polygon of n sides is (n – 2) 1800. Find the number of sides if the sum is1,2600.

8. A man, who is x years old now, has a son aged 5. In seven years the father will be 4 times as old as his son will be then. How old is the father now?

9. The perimeter of a rectangle is 44 cm. If the breadth is x cm and the length (x + 2) cm, find the length and the breadth.

10. A rod 30 m long is broken into two pieces, one of the length is x m and the other

    (x – 4) m. Find x.

11. A boy starts out from a town A to cycle towards a town B, 90 km away at an average speed of 16 km/h. At the same moment a motorist leaves B and travels towards A at an average speed of 56 km/h. After how many hours do they meet?
12. A cyclist sets out along a certain road at an average speed of 16 km/h. Half an hour later a motorist starts from the same place to overtake him. If the motorist‟s average speed is 48 km/h, find how many kilometers he must go before he overtakes the cyclist.

Exercise 2

13. Find the solutions of the following inequalities and illustrate the solution on a number line:
    (i) $4x + 1 > 7x - 5$ (ii) $2(x + 3) \geq 5(x - 4)$

    (ii) $7x - 6 \geq 4 + 17(x - 5)$ (iv) $-7 < 3x + 2 < x + 5$

    (v) $-2x + 1 < x - 5 < 5 - x$.

14. Show the region in which $3x + 4y < 12$ by shading out the unwanted region.
15. Find the region of the Cartesian plane which contains. points whose coordinates satisfy the following inequalities: $x \leq 4$; $2y + x \geq 4$ and $4y - 3x \leq 8$
16. Show on a graph the region defined by the inequalities.

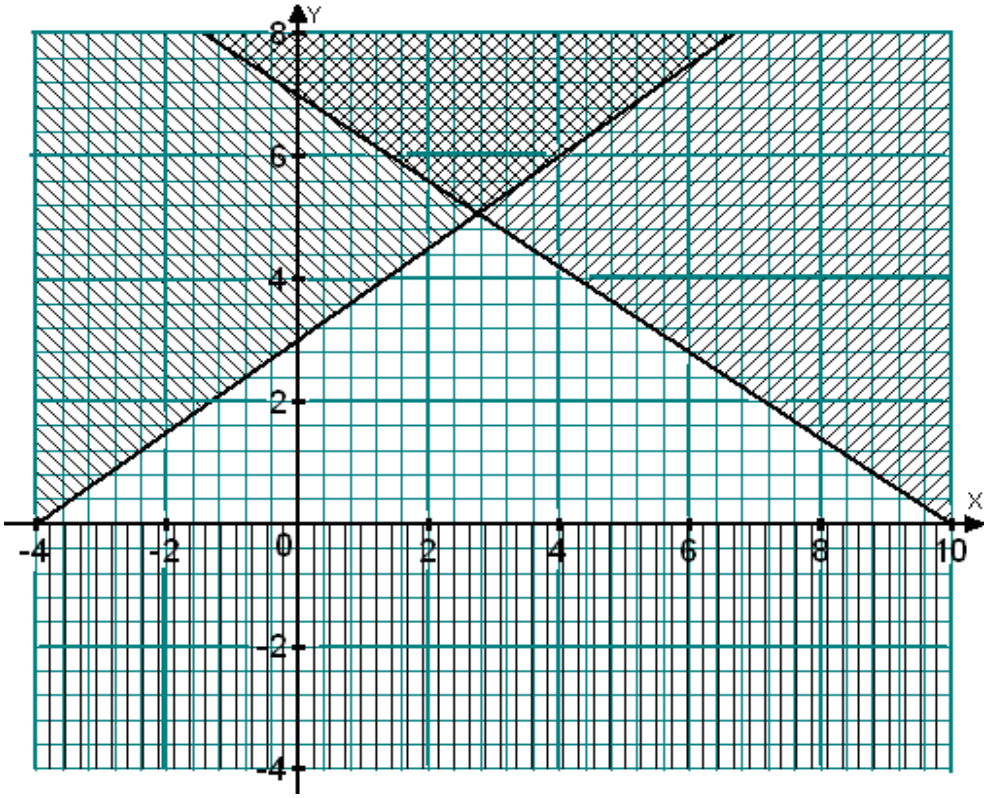
(a) $y < x$, $5y > x$, $x + y \leq 6$

(b) 10. $y \leq x + 1$, $x \leq 0$, $y + 2 > 0$

(c) 11. $x \geq 0$, $y > 0$, $x + y < 3$

(d) 12. $x \geq 4$, $y \geq 3$, $x + y < 13$, $6x + 5y \geq 60$

17. Give the inequalities that define the unshaded region shown below.



Exercise 3.

18. Find the image of the point (5, 2) under reflection in the y axis.

19. Find the image of point (-1, 2) under reflection in the line x = 2.

20. After a point has been reflected in the x axis, its image is at (3, 2). Find the coordinates of the object point.

21. The point P (-2, 4) is reflected in the line x = 0. Find the coordinates for P' the image of P.

22. The points A (4, 2) and B (1, 3) are reflected in the line y = x. Find the coordinates of A' and B', the images of A and B.

23. A reflection maps the point (5, 5) onto the point (1, 5). Find the equation of the mirror line.

24. A (3, 3); B (3, 1); C (5, 1) and D (5, 3) are the vertices of a square ABCD. On the same axes draw ABCD and its image A'B'C'D' under reflection in the line
x = 2. State the coordinates of A', B', C' and D'.

25. Find the image of each of the following points after a reflection in the lines:

(a) y = x (b) y + x = 0
(i) (4, 4) (ii) (3, 1) (iii) (-5, 5) (iv) (-4, 6)

Exercise 4.

SECTION A

1. Work out $0.\dot{6}\,\dot{3} + 0.\dot{1}\dot{1}$ *as* a fraction. (04 marks)
2.) Express $\mathbf{1024}$ as a product of its prime factors and hence find $\sqrt{\mathbf{1024}}$. (04 marks)
3. Given that $\mathbf{105_n = 21_{ten}}$, find the base n. (04 marks)
4. A reflection maps the point (5,5) onto the point (5, -1). Find by scale drawing the equation of the mirror line. (04 marks)
5. The representation fraction on a map $\frac{1}{250{,}000}$: find the area of a lake (in km^2) which is represented on the map by an area of $4.6cm^2$ (04 marks)
6. Given the sets:

   $A = \{All\ natural\ numbers\ less\ than\ 30\}$

   $B = \{All\ prime\ numbers\ between\ 4\ and\ 28\}$

   Find: a) $n(AnB^1)$

   b) $n(A^1nB)$ (04 marks)

7. Given that; $\boldsymbol{A * B = \frac{A^2 + B^2}{10B}}$, find;

   a) $\mathbf{-8 * 4}$

b) $\mathbf{7} * (-\mathbf{8} * \mathbf{4})$ (04 marks)

8. Solve the inequality:

$$4(x-1) \geq 10 - 3x$$ (04 marks)

9. Solve the equation:

$$\frac{(x-1)}{3} = \frac{(5-2x)}{15} + \frac{(x+6)}{5}$$ (04 marks

10. Find the smallest number of oranges which can be given to: Tom, Jimmy and Mary so that each of them gets 75, 90 and 120 respectively. (04 marks)

SECTION B

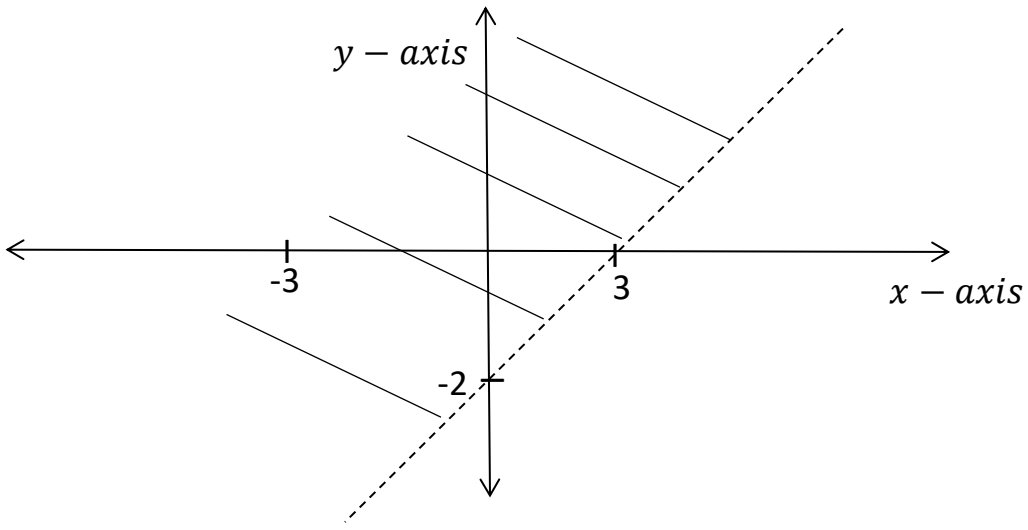
11. a) Plot the points A (5.2, 4.8), B (7.6, -0.3), C (-1.9, -0.3) and D (-1.9, -4.8) on the

Cartesian plane. Find the area of the figure formed.

(use a scale of 1cm to represent 1 unit)

b) Draw on the same graph the line passing through (-4, 0), (0, 4) and the other line passing through (2, 0), (0, -3). State the coordinates of the point of intersection. (12 Marks

12. a) Study the graph below.



Find the inequality representing the shaded region.

(04 marks)

b) By shading the un wanted regions, show the region which satisfies the inequalities:

$$y > \frac{3}{2}x - 3$$

$$x \leq 2$$

$$y > \frac{2}{3}x + 2$$

$$y \geq -x - 3$$

13.a) Triangle ABC with vertices A(-2,-7), B(-1,-11), and C(1,-7) is rotated through positive quarter turn (+90°) about a point (1,-4) to give $A^I B^I C^I$.

(i) Draw the same axes triangles ABC and $A^I B^I C^I$.

(ii) Write the coordinates of $A^I, B^I \ and \ C^I$

b)Triangles $A^I B^I C^I$ in (a) above is mapped onto triangle $A^{II} B^{II} C^{II}$ by a reflection in the line $y = -x$

i. Draw on the same axes in (a) above, the triangle $A^{II} B^{II} C^{II}$.

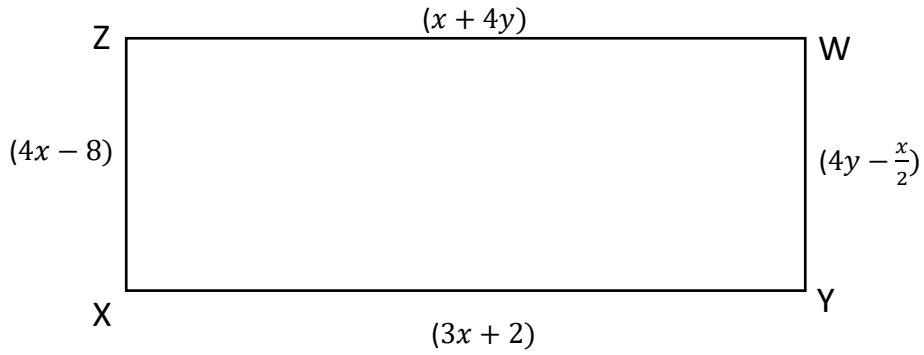
ii. Write the coordinates of $A^{II}, B^{II} \ and \ C^{II}$

14.(a) Solve the simultaneous equations:

$$4y - 2x = -8$$

$$5y - 3x = -10$$

(b) The figure below shows a rectangle XYWZ with $XY = (3x + 2)$, $YW = (4y - \frac{x}{2})$, $WZ = (x + 4y)$ and $XZ = (4x - 8)$



(i) Find the values of x and y.

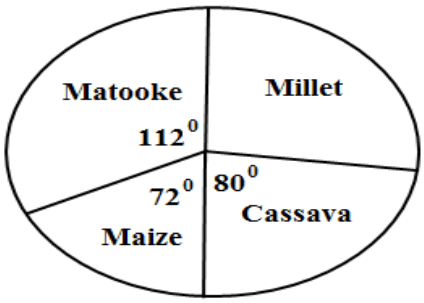
(ii) Hence find the perimeter of the rectangle

(12 marks)

15.(a) Evaluate without using tables or calculator $\frac{\mathbf{0.00056 \times 1560}}{\mathbf{0.52 \times 1.4}}$

(04 Marks)

(b) The pie chart below represents the food preferred by senior two students.



If the number of students who prefer cassava is 120:

(i) Determine the total number of senior two students.

(ii) Find the number of students who prefer millet. (04 marks)

(c) A sum of money is divided into two parts in the ratio 5:7.

If the larger amount is sh.6300, find the smallest amount.(04 marks)

16. Using a ruler, a pencil and a pair of compasses only,

(a) Construct a triangle ,ABC , with AB = 8cm, angle CAB = 90° and angle ABC = 60° (04 marks)

(b) (i) Measure and record the distances AC and BC

(II) Calculate the area of the triangle ABC (04 marks)

(c) Circumscribe triangle ABC and measure its radius. (04 marks)

17. (a) A Ugandan bought a car from Japan for Ush. 6000,000. How much did he pay for the car in Japanese yen if 1 Japanese Yen = 1.13 US dollars and 1 US dollar = Ush.1720.

(b) DE senior buys 200 items at a total cost of Sh. 600,000. He sells 150

Of them at a profit of 25% and the remainder at a loss of 8%.

(i) find the amount of his net profit.

(ii) Express his net profit as a percentage of his initial cost of all items. (12 marks)

18. Find the equation of the mirror line in each of the following:

(a) P (4, 3) is mapped onto P1(8, 3)

(b) Q (6, -2) is mapped onto Q1 (6, -2)

(c) R (-9, 3) is mapped onto R1 (-1, -3)

(d) S (3, 2) is mapped onto S1 (-3, 8).

END

WASH YOUR HANDS BEFORE AND AFTER READING