

Q.1 Multiple choice questions.

i. Identify the points that do not lie on the line $x = 3$.

- A. (3, 0)
- B. (3, 3)
- C. (3, -6)
- D. (4, 3)

ii. The y-intercept of the equation $y = 8x - 6$ is

- A. 8
- B. $8x$
- C. -6
- D. None of the above

iii. The slope of the line $y = c$

- A. 1
- B. 0
- C. C
- D. None of the above

iv. Which of the following is correct?

- A. $(a - b)^2 = a^2 + 2ab + b^2$
- B. $(a - b)^2 = a^2 - b^2$
- C. $(a - b)^2 = a^2 - 2ab + b^2$
- D. $(a - b)^2 = a^2 + 2ab - b^2$

v. The expanded form of $p^2(q + p^3)$ is

- A. $p^2q + p^6$
- B. $p^2q + p^5$
- C. $pq + p$
- D. $p^2 + p^2p^3$

vi. The roots of $(g - 5)(g + 4) = 0$ are

- A. 5, 4
- B. -5, -4
- C. -5, 4
- D. 5, -4

vii. Simplified form of $\frac{3x+3}{3}$ is

- A. $\frac{x}{3}$
- B. $\frac{x+1}{3}$
- C. $x + 1$
- D. $x + 3$

viii. At what time would the train reach its destination if it started its journey at 0543 and travelled for 7 hours and 58 minutes?

- A. 13 41
- B. 13 01
- C. 12 41
- D. 12 01

ix. A cyclist takes 20 minutes to travel a distance of 16 km. The total distance travelled in 50 minutes is

- A. 40 km
- B. 62.5 km
- C. 42 km
- D. 46 km

x. The ground floor of the building is drawn to scale 1cm : 10 m. The length of 8.3 cm on the scale represents _____ m in real life.

- A. 8.3
- B. 0.83
- C. 830
- D. 83

Q.2 Expand the following algebraic expressions and simplify where possible. [10]

a. $3(6x + 3) - (8 - x)$ [2]

b. $(5x - 3)^2 - 2x$ [2]

c. $-4p^2 + (6p^2 + 3)(8 - p)$

[/3]

d. Use algebraic identity to evaluate the following.

[/3]

97×103

Q.3 Factorize the following completely.

[10]

a. $24a^2 + 16a$

[2]

b. $m^2n - mnr - 2mr + 2r^2$

[3]

c. $2k^2 - 32$

[3]

d. Find the value of 'h' in the equation $x^2 - 5x + h = 0$, if $x = 4$ is the solution of the equation.

[2]

Q.4 Solve the algebraic fractions giving your answer in the simplest form.

[10]

a. $\frac{12pq-4pr}{2(3q-r)}$

[]/3

b. $\frac{c-a}{5} + \frac{2c+3}{3}$

[]/3

c. $\frac{12b^4a^5}{3a^2} \div \frac{4bd}{3ad} \times \frac{14d^4}{7ba}$

[]/4

[10]

Q.5

a. A bus leaves town "x" at 20 00 and arrives in town "y" at 08 30 the next day.

[/2]

i. Calculate the time taken for the journey

ii. Calculate the average speed of the bus, given that the distance from town X to town Y is 625 km.

[/3]

b. Ali is completing his assignment of solving the following simultaneous equations using graphical method. [/5]

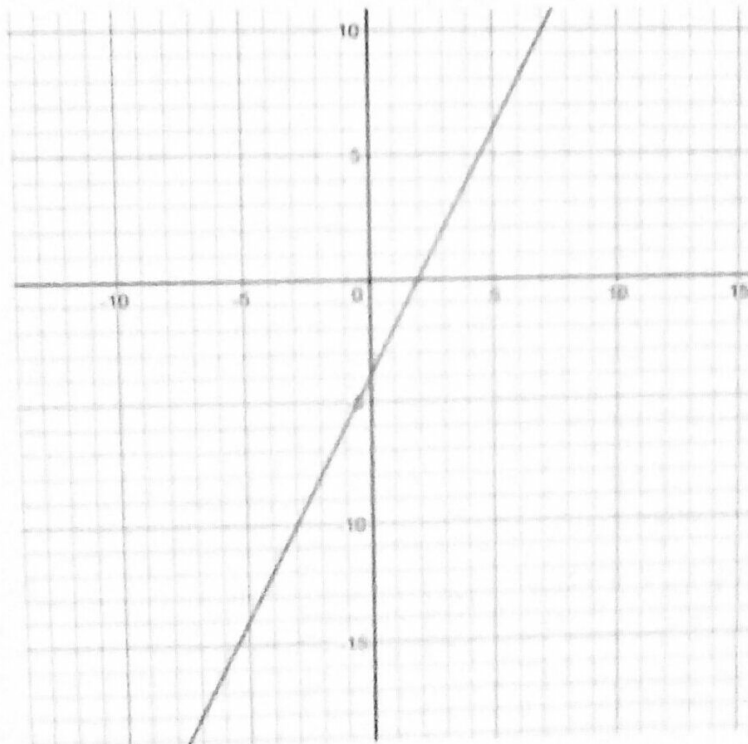
$$y = 2x - 4$$

$$y = 3x - 1$$

He was able to plot the line for the equation: $y = 2x - 4$

Complete his assignment by plotting the line for the equation $y = 3x - 1$ to find the solution.

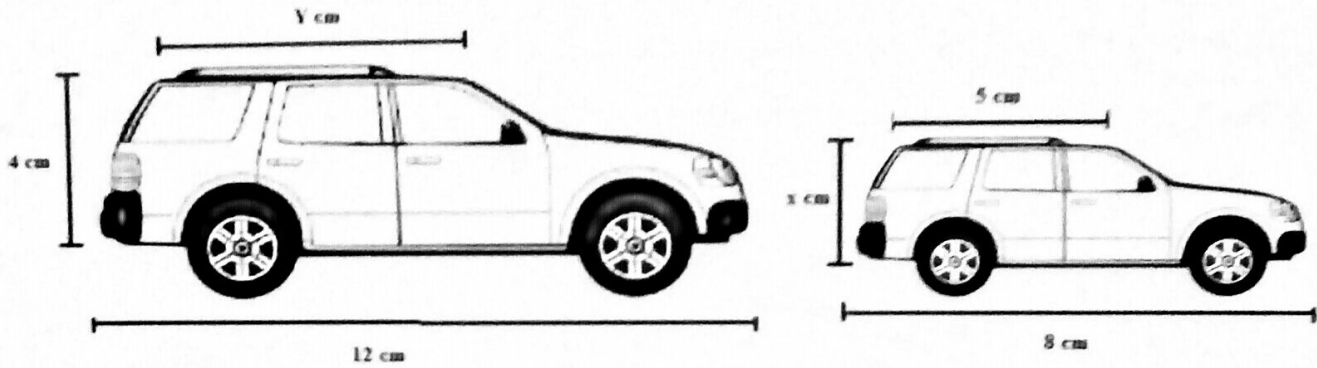
X			
Y = 3x - 1			



Q.6

[10]

- a. Calculate the unknown lengths and angles for the two similar car models.



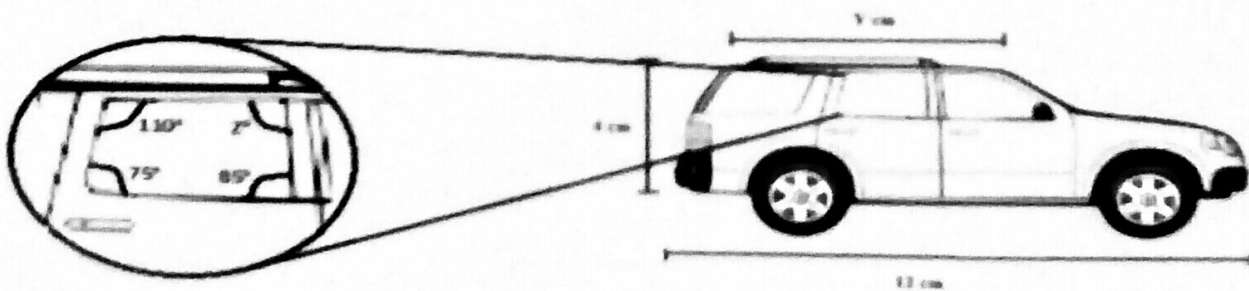
i. X?

[/3]

ii. Y?

[/3]

- b. The magnified image of the window of the car model is given below. Calculate the value of the fourth corner of the window.


 $Z^\circ = \underline{\hspace{2cm}} \quad [/2]$

- c. A map of a region is drawn to a scale of 1cm to 5km. A reservoir has an area of 16 cm^2 on the map. Calculate the actual area of reservoir in km^2 .

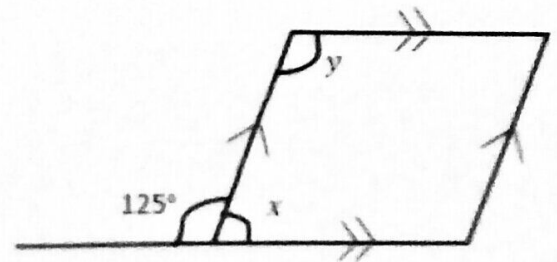
[/2]

Q.7

[10]

- a. Calculate the unknown values of the figure given below.

And state a proper reason for your answer.



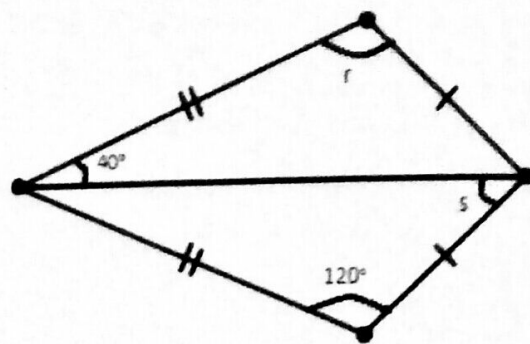
- i. x ?

[/2]

- ii. y ?

[/2]

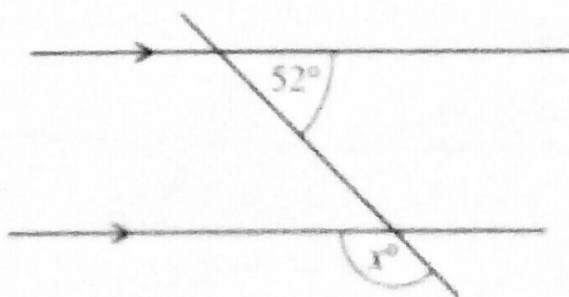
b. Find the missing angles of the given shape and state a proper reason for your answer.



$R =$ _____ [/2]

$S =$ _____ [/2]

c. In the diagram, a straight line intersects two parallel lines. Find the value of x . [/2]



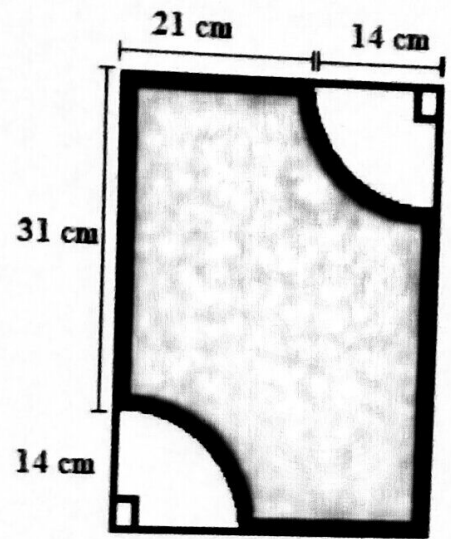
Q.8

a. Find the Area and perimeter of the shaded portion of the given shape. [10]

Take π to be $\frac{22}{7}$

i. Area of the shaded region.

[/4]



ii. Perimeter of the shaded part

[/3]

b. Find the diameter of the circle if its perimeter is 352 cm.

[/3]

- Q.9** The table below shows number of events taking place per day in a city over a period of 40 days. [10]

Number of Events	1	2	3	4	5	6
Number of Days	12	9	8	2	5	4

- a. Draw a histogram to show the results. [4]
- b. How many events took place in the city altogether? [2]
- c. Calculate mean and mode of the distribution. [2]
- d. Find the median of the following set of data. [2]
13, 10, 10, 14, 15, 18, 11, 20

Q.10

- a. When a number is divided by 4 and has 28 added to it, the result is twice the number. Find the number. [10]

[/3]

- b. Usman's age is $\frac{4}{5}$ that of Salman. The sum of their ages after 5 years will be 28. Calculate Salman's age now. [3]

[/3]

- c. The length and breadth of a rectangle are $(3x)$ and $(2x - 2)$ respectively. If the area of the rectangle is 120 cm^2 , find the value of length and the breadth. [4]

[/4]