MATHS

BOOKS - MTG IIT JEE FOUNDATION

PREP TEST 2

Section A

1. If two adjacent sides of a rectangle are $4x + 7y$ and 3y - x, then find its perimeter.

A. $3x + 20y$

B. $x + 15y$

C. $6x + 20y$

D. $6x + y$

Answer: C

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2. What will be the sign of the product if we together multiply 199 negative integers and 10 positive integers?

A. Negative

B. Positive

C. Can't say

D. Data is insufficient

Answer: A

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3. The quotient when 0.00639 is divided by 0.213 is

A. 0.3

B. 0.03

C. 0.003

D. 3

Answer: B

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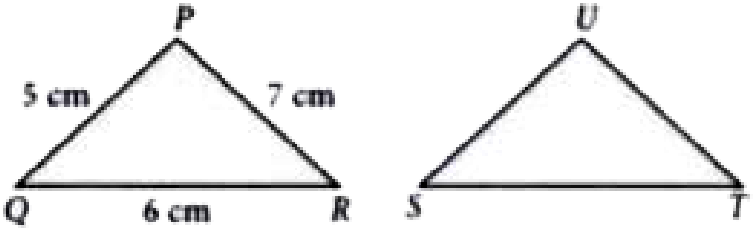
4. If $\triangle PQR$ is congruent to $\triangle STU$ (see figure), then what is the length of TU?



A. 5 cm

B. 6 cm

C. 7 cm

D. cannot be determined

Answer: B

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5. The temperature (in °C) of a city in a week was recorded as follows :

Days	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Temperature (in °C)	28	30.5	32.9	29.6	40	42.8	39

What is the range of the temperature?

A. $20.8^\circ C$

B. $28.6^\circ C$

C. $14.8^\circ C$

D. $32.9^\circ C$

Answer: C

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6. Which of the following steps is INCORRECT while constructing $\triangle XYZ$ if it is given that XY = 6 cm, $\angle ZXY = 30^\circ$ and $\angle XYZ = 100^\circ$?

Step 1 :

Draw line XY of length 6 cm.

Step 2 : At X, draw a ray XP making an angle of 30° with XY.

Step 3 : At Y, draw a ray YQ making an angle of 100° with YX.

Step 4 : The point of intersection of the two rays XY and YQ is Z.

A. step 1

B. step 2 and step 4

C. step 3

D. step 4

Answer: D

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7. On selling an article for Rs. 329, a dealer lost 6%. The cost price of the article is

A. Rs 310.37

B. Rs 348.74

C. Rs 335

D. Rs 350

Answer: D

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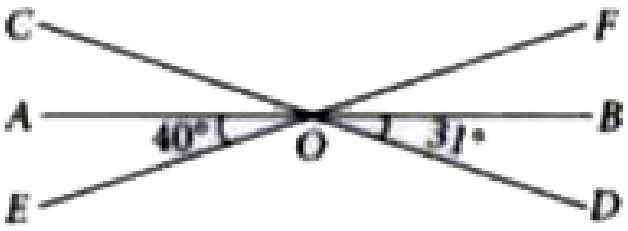
8. In the given figure, find the value of $\angle BOC$



A. 101°

B. 149°

C. 71°

D. 140°

Answer: B

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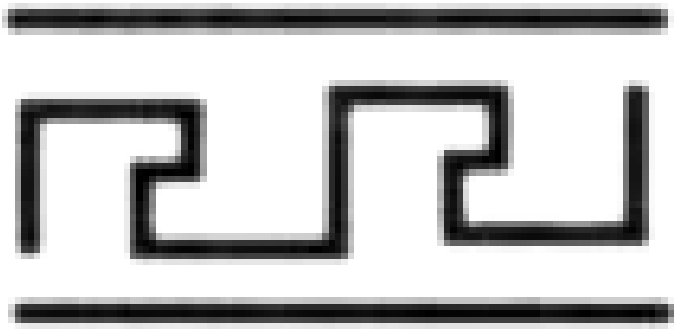
9. The order of rotational symmetry in the given figure is:



A. 4

B. 2

C. 1

D. infinitely many

Answer: B

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10. What is the probability of picking an odd number from 45, 56, 78, 99,81,23, 14

A. $5/7$

B. $4/7$

C. $3/7$

D. $6/7$

Answer: B

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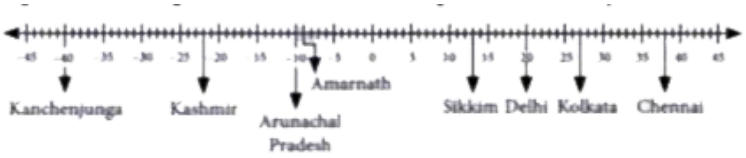
11. The number line shows the temperature of places in India on a particular day (in °C).



What is the temperature difference between Sikkim and Kashmir?

A. $35^\circ C$

B. $9^\circ C$

C. $22^\circ C$

D. $13^\circ C$

Answer: A

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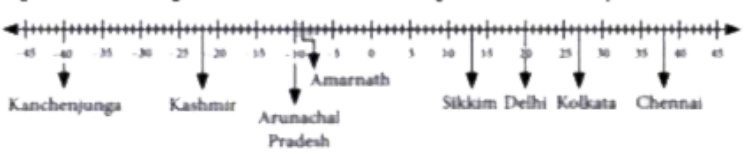
12. The number line shows the temperature of places in India on a particular day (in °C).



Find the sum of the temperatures of the coldest and hottest places.

A. $2^\circ C$

B. $-2^\circ C$

C. $78^\circ C$

D. $12^\circ C$

Answer: B

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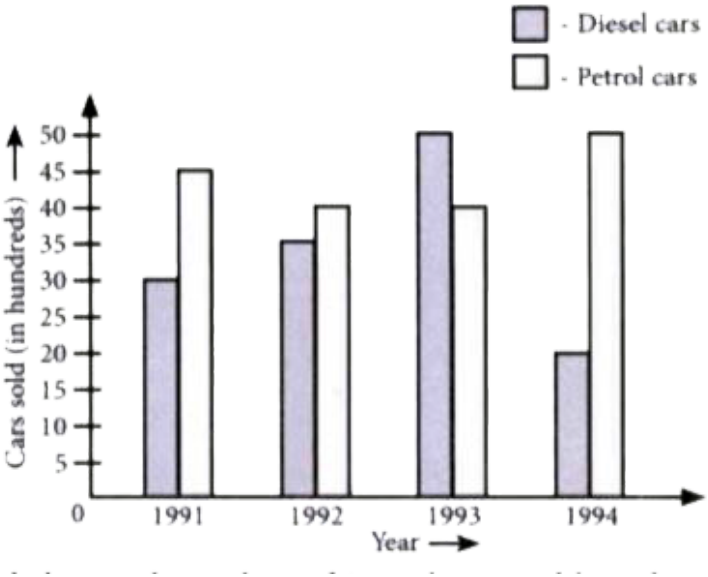
13. Study the graph carefully and answer the following questions.



Find the total number of Diesel cars sold in the year 1992 and 1994 together.

A. 2500

B. 5500

C. 1500

D. 4500

Answer: B

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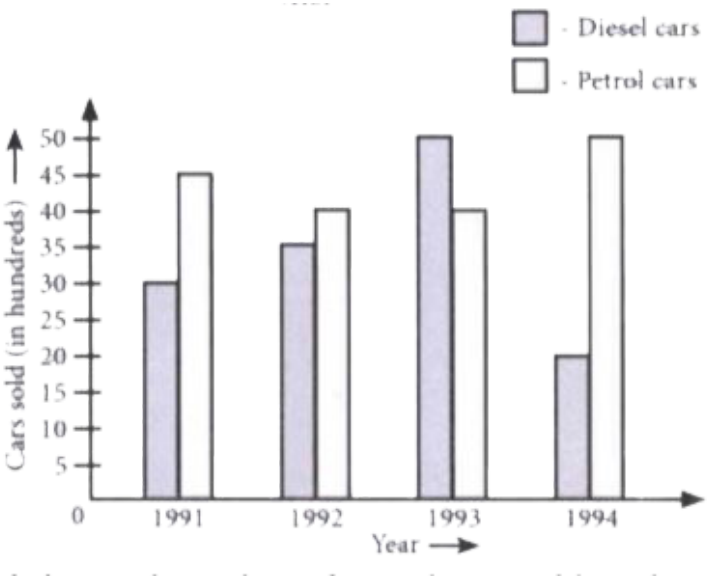
14. Study the graph carefully and answer the following questions.



How many cars were sold during the year 1991?

A. 9000

B. 6500

C. 7500

D. 7000

Answer: C

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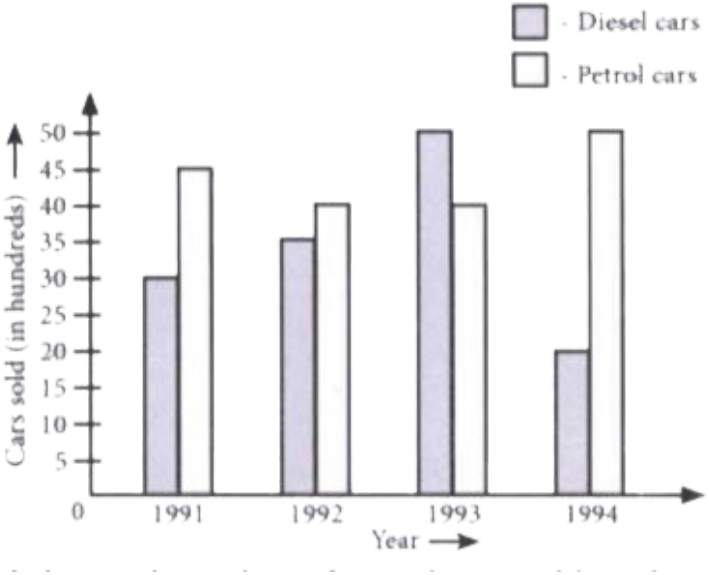
15. Study the graph carefully and answer the following questions.



Find the mean sale of Petrol cars.

A. 4735

B. 5745

C. 5740

D. 4375

Answer: D

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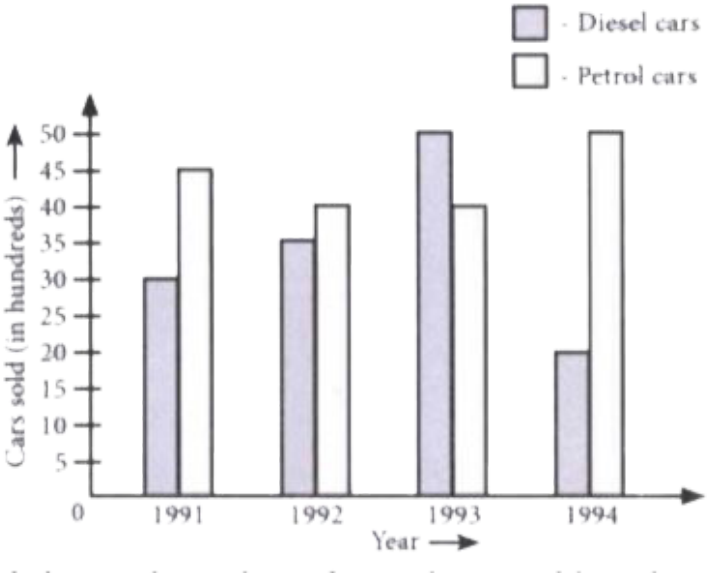
16. Study the graph carefully and answer the following questions.



How many more Diesel cars were sold in 1991 than in 1994?

A. 500

B. 1500

C. 1000

D. 2000

Answer: C

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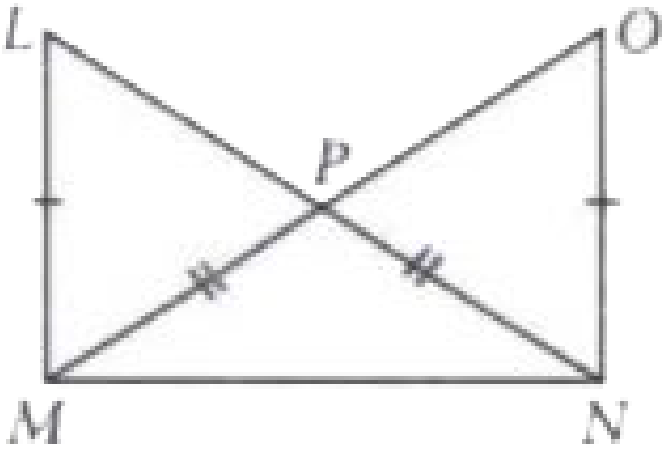
17. Assertion: In the given figure, LM = ON and NL = MO, then $\triangle NOM \cong \triangle MLN$

Reason: Two triangles are congruent if two sides and the angle included between them in one of the triangles are equal to the corresponding sides and the angle included between them of the other triangle



A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false

D. If assertion is false but reason is true.

Answer: D

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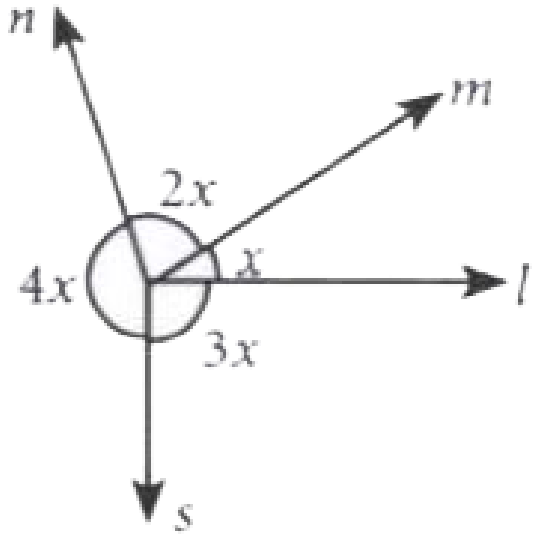
18. Assertion : In the given figure, the value of x is 40°.



Reason : The sum of all the angles at a point is 360°.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false

D. If assertion is false but reason is true.

Answer: D

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19. Assertion : On simplifying $\frac{10}{11} \times \left(-\frac{14}{5}\right) + \frac{10}{11} \times \left(-\frac{8}{5}\right)$ we get -4.

Reason : While adding rational numbers with same denominators, we add the numerators and denominator separately.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false

D. If assertion is false but reason is true.

Answer: C

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20. Assertion: If we rotate a right angled triangle of height 5 cm and base 3 cm about its base, we get cone of height 3 cm and base 5 cm

Reason : Plane figures are of 2 dimensions and solid shapes are of 3 dimensions.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false

D. If assertion is false but reason is true.

Answer: B

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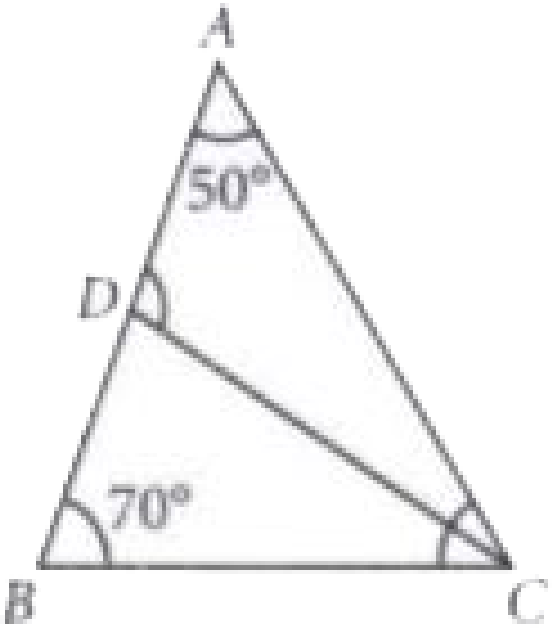
Section B

1. In $\triangle ABC, \angle A = 50^\circ, \angle B = 70^\circ$ and bisector of $\angle C$ meets AB in D (see figure). Find the measure of $\angle ADC$.



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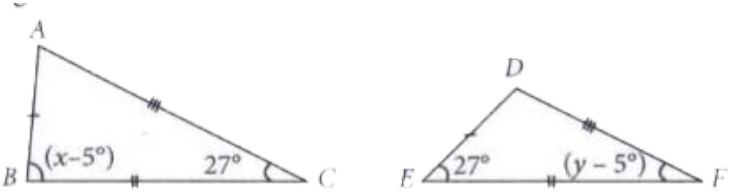
2. $\triangle ABC$ and $\triangle DEF$ are congruent triangles by SSS congruence criterion. Find the value of x and y respectively.



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3. The price of an article was decreased by 25%. If the reduced price is Rs 8460, then what was its original price?

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4. What number should be subtracted from $\frac{12}{21}$, so that the resultant will be $-\frac{3}{4}$?

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5. If in 5 less than thrice a number, 7 is added, the result is 14. Find the number.

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6. If $P = -(x-2), Q = -2(y+1)$ and $R = -x+2y$, find a, when $P+Q+R = ax$

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7. The sum of four consecutive natural numbers is 722. Find the numbers.

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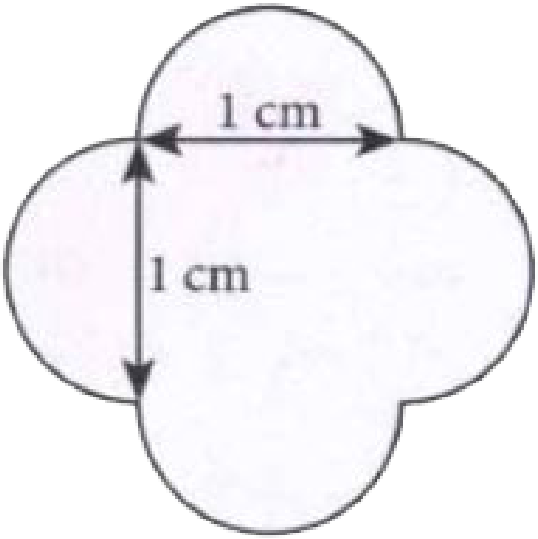
8. Find the perimeter of the given shape (Take $\pi = \frac{22}{7}$)



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9. Solve: $15.3 + 3 - \frac{1}{4}$ of $(19.6 - 6.8) + 0.5 \times 7.5$

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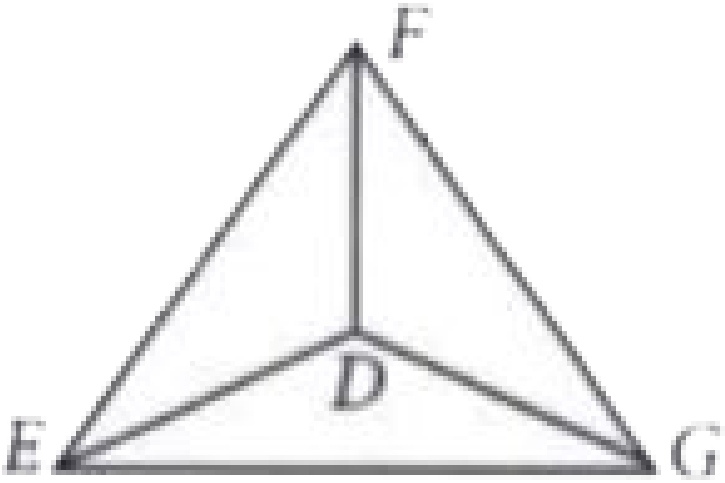
10. In the given figure, FD is the bisector of $\angle EFG$, also $\angle FDE = \angle FDG$. Prove that $\triangle DFE \cong \triangle DFG, DE = DG$ and $\angle FED = \angle FGD$.



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11. If $A = 3x^2 - 4x + 1, B = 5x^2 + 3x - 8$ and $C = 4x^2 - 7x + 3$, then find (A+B)-C.

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12. The speed of light in vacum is 3×10^8m/s. Sunlight takes about 8 minutes to reach the earth. Express distance of Sun from Earth in standard form.

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13. Solve for: $x : \frac{5x-2}{2} - \frac{x-3}{5} = \frac{x-6}{3}$

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14. If the selling price of 10 eggs is same as the cost price of 11 eggs, then find the profit or loss percent.

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15. In a test, +3 marks are given for every correct answer and –1 mark are given for every incorrect answer. Sona attempted all the questions and scored +20 marks though she got 10 correct answers.

How many incorrect answers has she attempted?

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16. Insert 3 equivalent rational numbers between

$0 \text{ and } -10$

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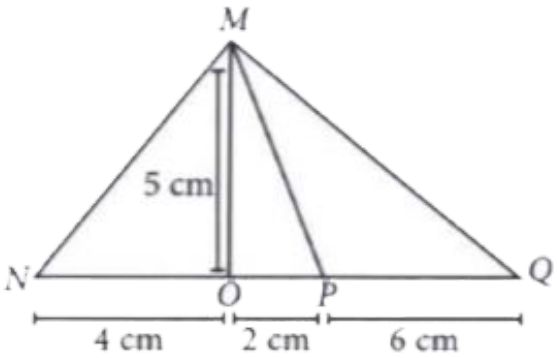
17. Find the areas of $\triangle MNO$, $\triangle MOP$ and $\triangle MPQ$ in the given figure.



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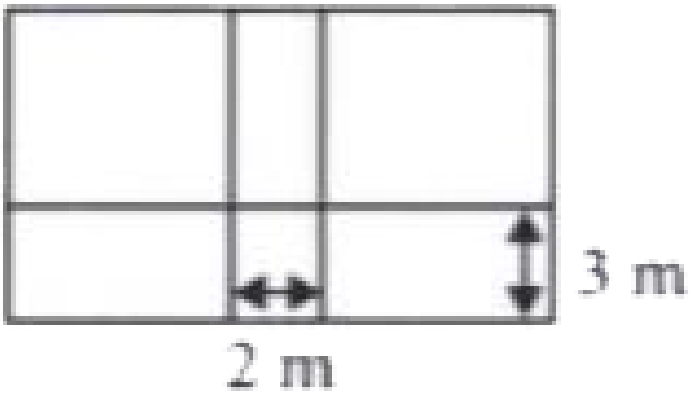
18. A school playground is divided by a 2 m wide path which is parallel to the width of the playground and a 3 m wide path which is parallel to the length of the ground (see figure).

If the length and width of the playground are 120 m and 80 m

respectively, then find the area of the remaining playground.



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19. Rita has bought a carpet of size $4m \times 6\left(\frac{2}{3}\right)$ m . But her room size is $3\left(\frac{1}{3}\right)m \times 5\left(\frac{1}{3}\right)m$. What fraction of area should be cut off to fit wall to wall carpet into the room?

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20. A man travelled two fifth of his journey by train, one-third by bus one-fourth by car and the remaining 3 km on foot. What is the length of his total journey?

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21. If the heights of two poles are 22 m and 37 m and the distance between their tops is 39 m, then find the distance between the feet of the poles.

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22. Draw two parallel lines at a distance of 2.2 cm apart.

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23. The marks in a subject for 12 students are as follows: 31, 37, 35, 38, 42, 23, 17, 18, 35, 25, 35, 29.

For the given data, find the.

(a) Mean (b) Median (c) Mode

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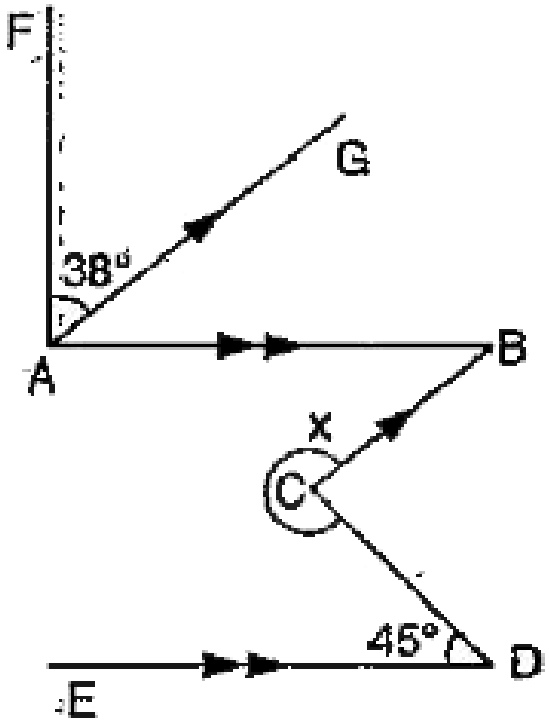
24. Given , $AB||ED, AG||CB$ and $AF \perp AB$.

$\angle FAG = 38^\circ$, $\angle CDE = 45^\circ$. Find the value of x.



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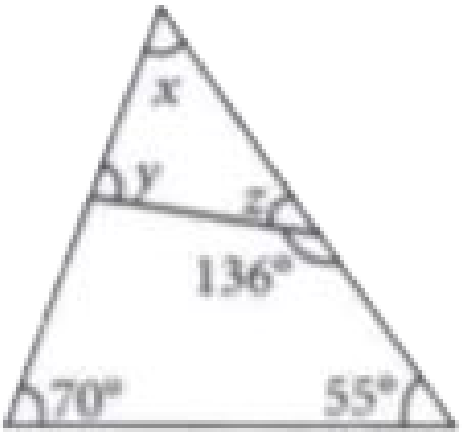
25. Find the value of x,y and z.



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26. Following cards are put facing down: A, E, I, O, U What is the chance of drawing out: (a) a vowel (b) A or I (c) a card marked U

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27. By what number should $(-4)^5$ be divided so that the quotient may be equal to $(-4)^3$?

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28. Divide Rs. 10000 in two parts so that the simple interest on the first part for 4 years at 12 per cent per annum may be equal to the simple interest on the second part for 4.5 years at 16 per cent per annum.

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29. Represent the following rational numbers on a number line: $\frac{3}{8}, \frac{-7}{3}, \frac{22}{-6}$.

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30. Subtract the sum of $12ab - 10b^2 - 18a^2$ and $9ab + 12b^2 + 14a^2$ from the sum of $ab + 2b^2$ and

.

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