Silver Grove School

SAMPLE PAPER SET-I (2025-26)
CLASS- IX-B
SUBJECT: MATHEMATICS

TIME: 3 Hrs. M.M. 80

General Instructions:

1. The question paper contains five sections A, B, C, D and E .
2. Section A consists of 20 questions of 1 mark each .
3. Section B consists of 5 questions of 2 marks each .
4. Section C consists of 6 questions of 3 marks each .
5. Section D consists of 4 questions of 5 marks each .
6. Section E consists of 3 questions based on Case Studies with sub-parts of the values of 1,1 & 2 marks each respectively .

SECTION A

Q1. Factors of $6x^2 + 5x - 6$ are

a. $(x - 6)(x+5)$ b. $(2x - 2)(x - 3)$ c. $(2x - 3)(3x + 2)$ d. $(2x + 3)(3x - 2)$

Q2.If $f(y) = y + 3$, then $f(y) + f(-y)$ is equal to

(a) 3 (b) $2x$ (c) 0 (d) 6

Q3. The bisectors of any two adjacent angles of a parallelogram intersect at:

(a) 30 degree (b) 45 degree (c) 60 degree (d) 90 degree

Q4. The measure of angles between coordinate axes is

a) 0° b)90° c)180° d)360°

Q5. Which of the following is not a criterion for congruence of triangles?

(a) SAS (b) ASA (c) SSA (d) SSS

Q6.The value of $\sqrt{2}$ up to 3 decimal place is

a) 1.4010 b)1.412 c)1.414 d)1.413

Q7 Which of the following statements is/are correct?

(i) Every integer is a rational number

(ii) Every rational number is an integer

(iii) A real number is either rational or irrational number.

(iv) Every whole number is a natural number.

(a) (ii) (b) (iii) (c) (i) and (iii) (d) all of these

Q8. ΔABC, $AB = AC$ and $\angle B = 50°$. Then $\angle C$ is equal to

(a) 40° (b) 50° (c) 80° (d) 130°

Q9. Euclid stated that all right angles are equal to each other in the form of

(a) A Postulate (b) A Proof (c)An Axiom (d)A Definition

Q10. Angles of a triangle are in the ratio 2 : 4 : 3. The smallest angle of the triangle is

(A) 60° (B) 40° (C) 80° (D) 20°

Q11. The abscissa of a point is the distance of the point from

a) Origin b) x-axis c) y-axis d) none of these

Q12. If two acute angles of a right triangle are equal, then each acute angle is equal to

a) 45^0 b) 60^0 c) 30^0 d) 90^0

Q13. If (4, 19) is a solution of the equation $y = ax + 3$, then a=

(a) 3 (b) 4 (c) 5 (d) 6

Q14. How many linear equations are satisfied by x = 2 and y = −3?

(a) Only one (b) Two (c) Three (d) Infinitely many

Q15. Given angle PQR =3x and angle QOR=2x+10, if POQ is straight line, then value of x is

(a)30^0 (b)$36^{0.}$ (c) 17^0 d)34^0

Q16. It is known that if x + y = 10 then x + y + z = 10 + z. The Euclid's axiom that

illustrates this statement is :

(a) First Axiom (b) Second Axiom

(c) Third Axiom (d) Fourth Axiom

Q17John is of the same age as Mohan. Ram is also of the same age

as Mohan. State the Euclid's axiom that illustrates the relative ages of John and Ram

(a) First Axiom (b) Second Axiom

(c) Third Axiom (d) Fourth Axiom

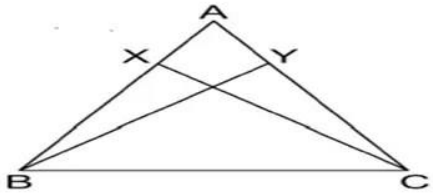
Q18. Consider the following statements:
When two straight lines intersect:
(i) adjacent angles are complementary
(ii) adjacent angles are supplementary
(iii) opposite angles are equal
(iv) opposite angles are supplementary
Of these statements

(a) (i) and (ii) are correct
(b) (ii) and (iii) are correct
(c) (i) and (iv) are correct
(d) (ii) and (iv) are correct

Q19. Assertion: the sum of two adjacent angle is 100° and one of them is 35° then other is 65°
Reason: adjacent angle are always supplementary.

a.) Both Assertion and Reason are correct and Reason is the correct explanation for Assertion
b.) Both Assertion and Reason are correct and Reason is not the correct explanation for Assertion.
c.) assertion is true but the reason is false.
d.) both assertion and reason are false.

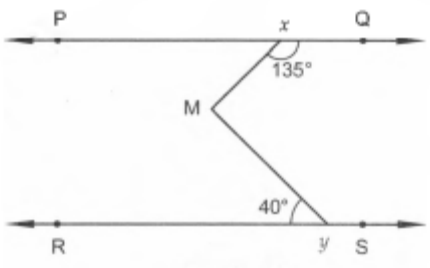
20Assertion : In the adjoining figure, X and Y are respectively two points on equal sides AB and AC of ΔABC such that AX = AY then CX = BY.



Reason: If two sides and the included angle of one triangle are equal to two sides and the included angle of the other triangle, then the two triangles are congruent
a) both Assertion and reason are correct and reason is correct explanation for Assertion.
b) both Assertion and reason are correct but reason is not correct explanation for Assertion
c) Assertion is true but reason is false.
d) both Assertion and reason are false.

SECTION B

Q.21 – In Fig., if PQ || RS, ∠MXQ = 135° and ∠MYR = 40°, find ∠XMY.



Q.22 – In the given figure, if x + y = w + z , then prove that AOB is a line .

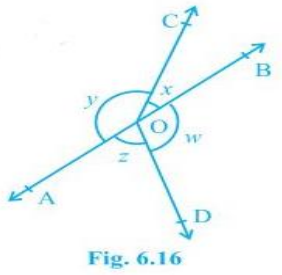


Fig. 6.16

Q.23 – The following points lies in which quadrant : (i) (3, -7) (ii) (0, 0) (iii) (-3, -5) (iv) (0, -11) .

Q.24 – A shot-putt is a metallic sphere of radius 4.9 cm. if the density of the metal is 7.8g per cm cube , find the mass of the shot-putt.

Q.25 – Factorise $8x^3$ - $(2x - y)^3$.

SECTION C

Q.26 – If $x - \frac{1}{x} = 5$, find the value of $x^3 - \frac{1}{x^3}$

Q.27 – Factorise: $x^3 - 23x^2 + 142x - 120$

Q 28 – Find a and b, if (x + 1) and (x + 2) are factors of ($x^3 + 3x^2 - 2ax + b$) .

Q.29 – : if $(x + 1/x)^3 = 3$ find the value of : $x^{72} + x^{66} + x^{54} + x^{36} + x^{24} + x^6 + 1$

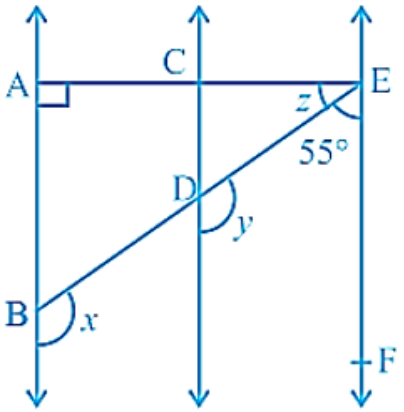
Q.30 – Represent $\sqrt{9.3}$ on number line.

Q.31 – (i)Prove that the sum of three angles of a triangle is180°.

(ii) Show that the angle of an equilateral triangle is 60°.

OR

Fig., AB || CD and CD || EF. Also, EA ⊥ AB. If ∠BEF = 55°, find the values of x, y and z.



SECTION D

Q.32 – Factorize each of the following :

(i) $27x^3 - y^3 - z^3 - 9xyz$.

(ii) $(a-b)^3 + (b-c)^3 + (c-a)^3$.

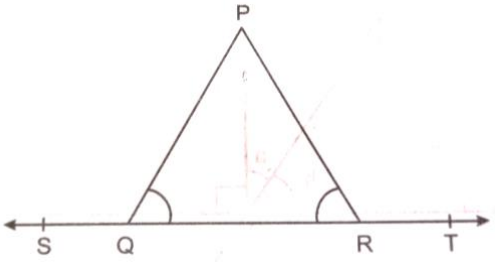
Q.33 – Monica has a piece of canvas whose area is 551 m^2 . She uses it to have a conical tent made, with a base radius of 7 m. assuming that all the stitching margins and the wastage incurred while cutting, amounts to approximately 1 m^2, Find the volume of the tent that can be made with it.

Q.34- A right triangle ABC with sides 5 cm, 12 cm and 13 cm.

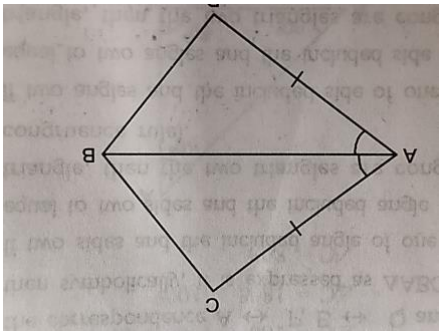
(a) If the triangle ABC is revolved about the side 12 cm, then find the volume of the solid so obtained.
(b) If the triangle ABC is revolved about the side 5 cm, then find the volume of the solid so obtained.
(c) Find the ratio of the volumes of the two solids obtained

OR

In figure, ∠PQR = ∠PRQ, then prove that ∠PQS = ∠PRT.



Q35.In quadrilateral ABCD, AC = AD and AB bisects ∠A (see figure). Show that ΔABC ≅ ΔABD. What can you say about BC and BD?



OR

(a) Prove that :Angles opposite to equal sides of an isosceles triangle are equal.

(b) Factorise : $x^8 - y^8$

SECTION E

CASE STUDY 1

Mohan distributed chocolates in an orphanage, on her birthday, he gave 5 chocolates to each children. Taking number of children as x and total chocolates distributed as y .

Answer the following questions based on the above information .

Q.36– (i) Write a linear equation, according to the given statement .

(ii) If he distributed 145 chocolates, then how many children are there in the orphanage?

(iii) If there are 20 children, then find the number of chocolates .

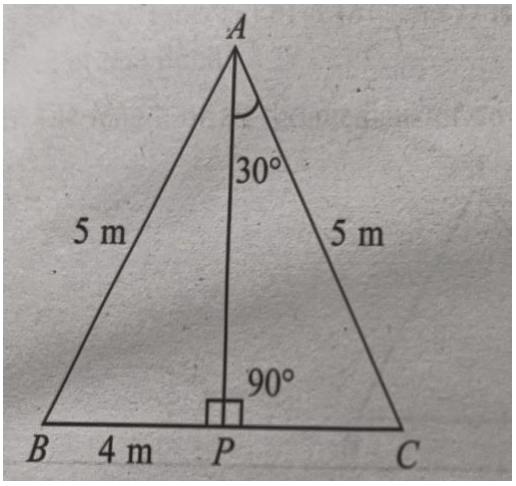
OR

If there are 27 children, then find the number of chocolates .

CASE STUDY 2

In a forest, a tree got broken due to heavy rain. Due to this rain , the branches AB and AC of tree length are 5 m and fell down on the ground.

The branch AC makes an angle 30 degree with the main tree AP. The distance of point B from P is 4 m.



Now answer the following questions.

1. ΔACP and ΔAABP are congruent by which criteria?

(a) SAS **(b) ASA**

(c) RHS **(d) SSS**

2. What is the length of CP?

(a) 3 m **(b) 4 m**

(c) 10 m **(d) 5 m**

3.What is the value of ∠BAP?

(a) 40° **(b) 30°**

(c) 50° **(d) 60°**

CASE STUDY 3

Haresh and Deep were trying to prove a theorem. For this they did the following

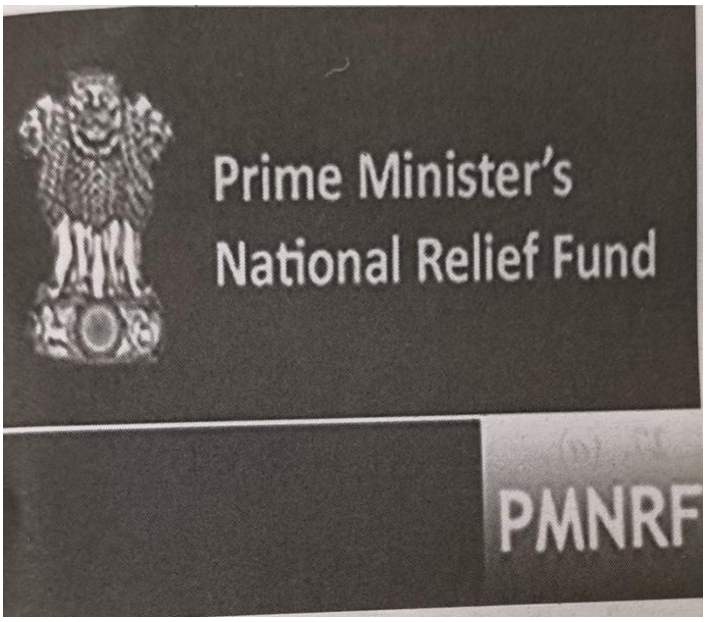
Draw a triangle ABC

D and E are found as the mid points of AB and AC

DE was joined and DE was extended to F so DE = EF

FC was joined.

Q.38- Prime Minister's National Relief Fund (Also called PMNRF in short) is the fund raised to provide support for people affected by natural and man-made disasters. Natural disasters that are covered under this include flood, cyclone, earthquake etc. Man-made disasters that are included are major accidents, acid attacks, riots, etc.



Two friends, Swati and Shreya, together contributed ₹300 towards the Prime Minister's Relief Fund. Answer the following:

1. How to represent the above situation in linear equations in two variables?

(a) $2x + 3y = 200$ (b) $x + y = 300$ (c) $200 + x = y$ (d) none of these

2. If both contributed equally, then how much is contributed by each?

(a) ₹50, ₹150 (b) 150, 150 (c) ₹50,₹50 (d) 120, 120

3. Which out of the following is not the linear equation in two variables

(a) $x = y$ (b) $x^2 + x = 1$ (c) $x + 3y = 7$ (d) $x + y = 0$

4. Which is the standard from of linear equation $x = -6$

(a) $x + 6$ (b) $1x - 5 = 0$ (c) $x + 0y + 0 = 0$ (d) $1x + 0y + 6 = 0$