INDIAN SCHOOL AL WADI AL KABIR
Class IX, Mathematics
WORKSHEET- QUADRILATERALS

OBJECTIVE TYPE (1 Mark)

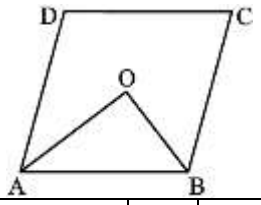
Q.1. A diagonal of a rectangle is inclined to one side of the rectangle at 25°. The acute angle between the diagonals is

	A	55°	**B**	50°	**C**	40°	**D**	25°

Q.2. The diagonals AC and BD of a parallelogram ABCD intersect each other at the point O. If $\angle DAC = 32°$ and $\angle AOB = 70°$, then $\angle DBC$ is equal to

	A	24°	**B**	86°	**C**	38°	**D**	32°

Q.3. In parallelogram ABCD, bisectors of anglesA and B intersect each other at O. the value of AOB is

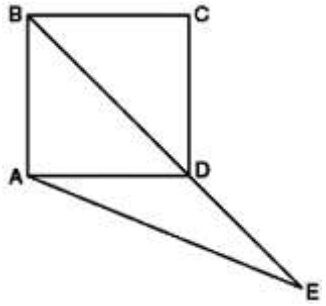


	A	30°	**B**	60°	**C**	120°	**D**	90°

Q.4. If the degree measures of the angles of quadrilateral are $4x, 7x, 9x \text{ and } 10\ x,$ what is the sum of the measures of the smallest angle and largest angle?

	A	140°	**B**	150°	**C**	168°	**D**	180°

Q.5. In the given figure, ABCD is a square, diagonal BD is extended through D to E. AD = DE and AE is drawn as given in the figure. What is $m\angle DAE$?

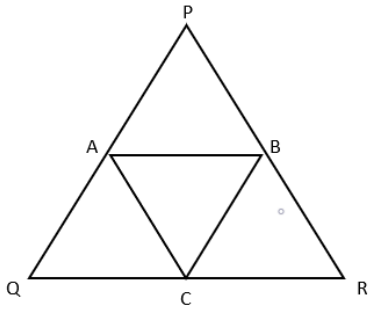


	A	22.5°	**B**	45°	**C**	112.5°	**D**	135°

Q.6. ABCD is a parallelogram. If its diagonals are equal, then find the value of $\angle ABC$.

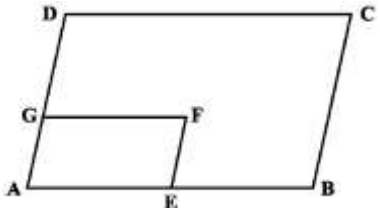
	A	45°	**B**	90°	**C**	180°	**D**	60°

Q.7. Find the perimeter of ΔABC, if perimeter of ΔPQR is 36cm and A, B and C are midpoints.



	A	9cm	**B**	36cm	**C**	20cm	**D**	18cm

Q.8. In the given figure, ABCD and AEFG are two parallelograms. If $\angle C = 55°$, determine $\angle F$.



	A	35°	**B**	75°	**C**	55°	**D**	105°

Q.9. If the angle between two altitudes of a parallelogram through the vertex of an obtuse angle of the parallelogram is 60°, then the angles of the parallelogram are

	A	60°, 120°, 60°, 120	**B**	70°, 110°, 50°, 130°	**C**	40°, 140°, 40°, 140°	**D**	80°, 100°, 80°, 100

ASSERTION AND REASONING

DIRECTION: A statement of **Assertion (A)** is followed by a statement of **Reason (R).**

Choose the correct option.

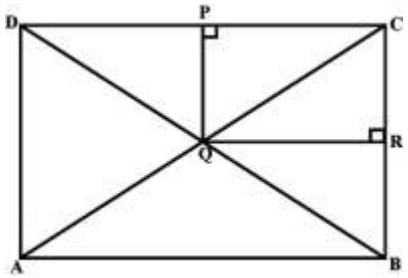
(a)Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

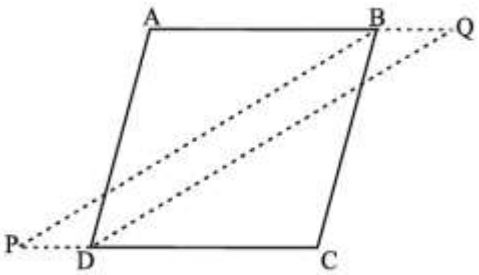
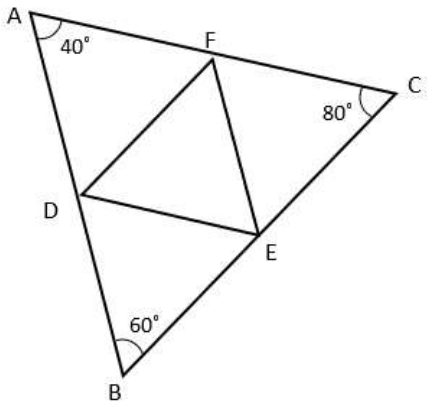
(b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).

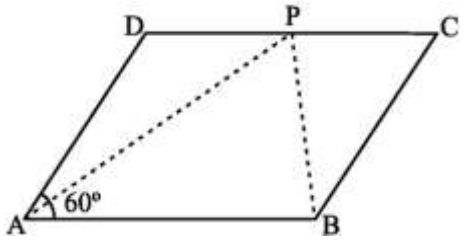
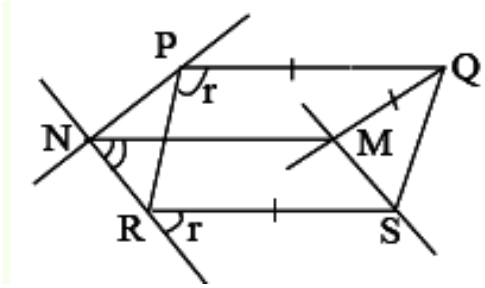
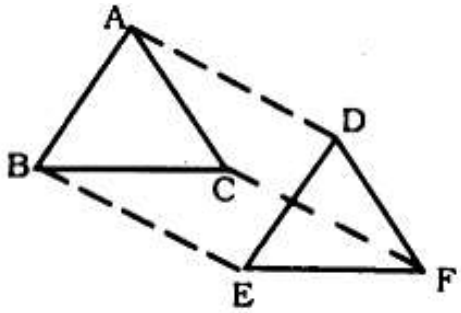
(c) Assertion (A) is true but Reason (R) is false.

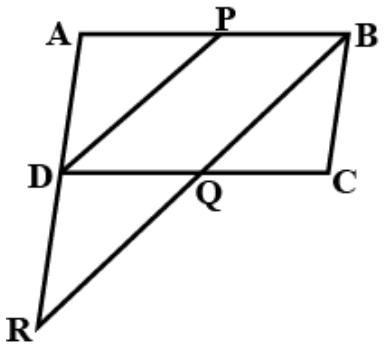
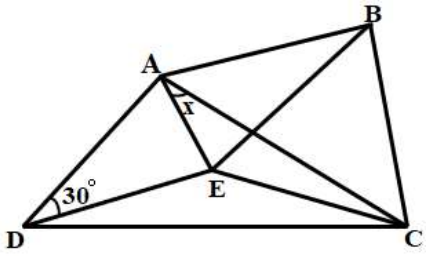
(d) Assertion (A) is false but Reason (R) is true.

Q.10. Assertion(A): ABCD and PQRC are rectangles and Q is a midpoint of AC . Then DP = PC.



	Reason(R): The line segment joining the midpoint of any two sides of a triangle is parallel to the third side and equal to half of it.
Q.11.	Assertion(A): All parallelograms are quadrilateral. Reason(R): All parallelograms are rectangles.
	Questions of 2 mark each
Q.12.	In the given figure, bisectors of $\angle B$ and $\angle D$ of quadrilateral ABCD meets CD and AB, produced at P and Q respectively. Prove that $\angle P + \angle Q = \frac{1}{2}(\angle ABC + \angle ADC)$ 
Q.13.	Find the ratio of the angles D : E : F of ΔDEF formed by joining the midpoints of the sides of ΔABC. 
Q.14.	Diagonals AC and BD of a parallelogram ABCD intersect each other at O. If OA = 3 cm and OD = 2cm; determine the lengths of AC and BD.
	Questions of 3 mark each
Q.15.	ABCD is a square. E, F , G and H are points on AB, BC, CD and DA respectively such that AE = BF = CG = DH. Prove that EFGH is a square.

Q.16.	In the given figure, ABCD is a parallelogram and $\angle DAB = 60°$. If the bisector AP and BP of angles A and B respectively meet P on CD. Prove that P is the mid point of CD. 
Q.17.	In ΔABC, AB = 5cm, BC = 9 cm and perimeter of $\Delta ABC = 25.5$ cm. If D, E and F are respectively the mid-points of AB, BC and CA, determine the length of DE and difference in the perimeter of ΔABC and ΔDEF.
	Questions of 5 mark each
Q.18.	PQ and RS are two equal and parallel line segments. Any point M not lying on PQ or RS is joined to Q and S and lines through P parallel to QM and through R parallel to SM meet at N . Prove that line segments MN and PQ are equal and parallel to each other. 
Q.19.	In ΔABC and ΔDEF, AB = DE, AB || DE, BC = EF and BC || EF. Vertices A, B and C are joined to vertices D. E and F respectively. Show that  (i) Quadrilateral ABED is a parallelogram. (ii) Quadrilateral BEFC is a parallelogram. (iii) AD || CF and AD = CF. (iv) quadrilateral ACFD is a parallelogram. (v) AC = DF (vi) ΔABC ≅ ΔDEF.

Q20.	P is the midpoint of side AB of a parallelogram ABCD. A line through B parallel to PD meets DC at Q and AD produced at R. Prove that (i) AR = 2BC (ii) BR = 2BQ 
	Case study- based questions
	CASE STUDY QUESTION: The figure below shows the side view of a shopping trolley. The metal plate is fixed on the side by the store keeper for advertisement. 
Q.21.	If three angles of the basket are obtuse. Which type of angle is the fourth?
Q.22.	What is the shape of the metal plate?
Q.23.	One angle of a quadrilateral is of 108° and the remaining three angles are in the ratio 1:2:3. Find each of the three angles.
Q.24.	In the given quadrilateral ABCD, ∠DAC = 90° and AB = AC = AD = DE = EB. 

	What is the value of ∠EAC?							
Q.25.	What is the value of ∠ABE?							
	ANSWERS							
	Q.1.	B	**Q.2.**	C	**Q.3.**	D	**Q.4.**	C
	Q.5.	A	**Q.6.**	B	**Q.7.**	D	**Q.8.**	C
	Q.9.	A	**Q.10.**	b	**Q.11.**	c	**Q.13**	4:2:3
	Q.14	6 cm, 10 cm	**Q.15.**	5.75 cm, 12.75 cm	**Q.21.**	Acute	**Q.22**	Parallelogram
	Q.23	42°, 84°,126°	**Q.24.**	15°	**Q.25.**	30°		

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