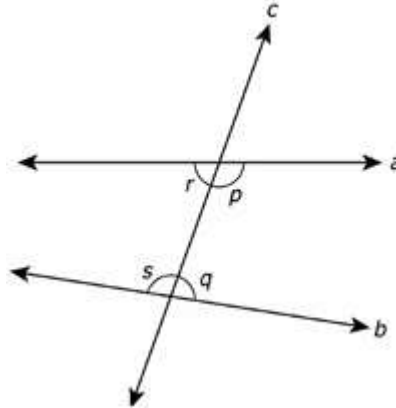




INDIAN SCHOOL AL WADI AL KABIR
Class IX, Mathematics
WORKSHEET_INTRODUCTION TO EUCLID'S GEOMETRY

OBJECTIVE TYPE (1 Mark)

Q.1. Observe the figure shown.



A student claimed that the lines when extended meet at a point which lies on the left of the line C. Given that the student's claim is true, which of these justifies the claim?

- | | | | | | | | |
|----------|---------------------|----------|---------------------|----------|---------------------|----------|---------------------|
| A | $p + q < 180^\circ$ | B | $p + r < 180^\circ$ | C | $r + s < 180^\circ$ | D | $s + q < 180^\circ$ |
|----------|---------------------|----------|---------------------|----------|---------------------|----------|---------------------|

Q.2. Two quantities A and B are such that $A=B$. Which of these equations illustrates the Euclid's axiom "If equals are added to equals, the wholes are equals"?

- | | | | | | | | |
|----------|-----------------|----------|-----------------|----------|-------------|----------|------------------|
| A | $A + x = B - x$ | B | $A + x = B + x$ | C | $A + x = B$ | D | $A \times x = B$ |
|----------|-----------------|----------|-----------------|----------|-------------|----------|------------------|

Q.3. Two tanks have equal volume of water. After 10 L of water is taken out from each tank, the tanks still have the same volume.

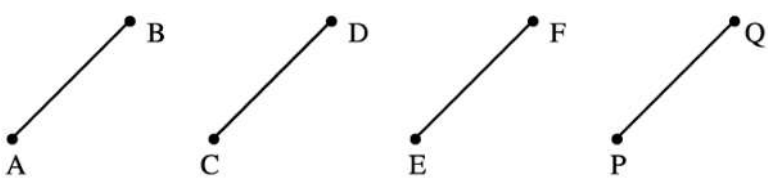
Which of these axioms is demonstrated by this situation?

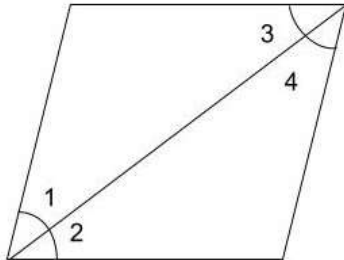
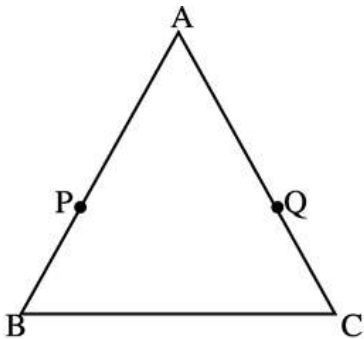
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|----------|---|----------|---|----------|--|----------|-----------------------------------|
| A | If equals are added to equals, the wholes are equals. | B | If equals are subtracted from equals, the wholes are equals | C | Things which are equal to the same thing are equal to one another. | D | A whole is greater than the part. |
|----------|---|----------|---|----------|--|----------|-----------------------------------|

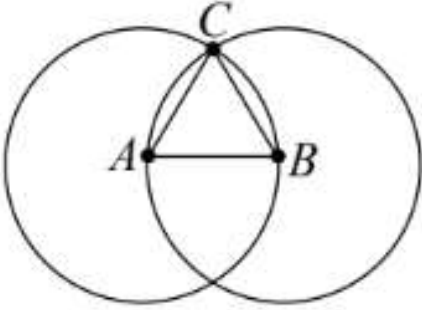
Q.4. Rajat drew a circle with centre M and radius 10 cm. He then made following claims using Euclid's postulates.
 Claim 1: It is possible to construct infinite circles each with center M and that lie inside the given circle.
 Claim 2: It is possible to construct infinite circles each with center M and that lie outside the given circle.

Which statement is true?

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|----------|-----------------------------|----------|-------------------------|----------|-------------------------|----------|----------------------------------|
| A | both the claims are correct | B | only Claim 2 is correct | C | only Claim 1 is correct | D | neither of the claims is correct |
|----------|-----------------------------|----------|-------------------------|----------|-------------------------|----------|----------------------------------|

Q.5.	Consider the given statement: From the vertex of a triangle ABC, only one median can be drawn. Which of the following helps prove the given statement?							
	A	A circle can be drawn with any centre and any radius.	B	A terminated line segment can be drawn indefinitely.	C	All right angles are equal to one another	D	Given any two points, only one line can be drawn passing through them
Q.6.	Raj drew a line passing through the points P, Q, and R. Kiran drew a line passing through Q and R. Which statement about the lines they drew is correct?							
	A	The lines coincide.	B	The lines are parallel.	C	The lines are perpendicular.	D	The lines meet at two points but are not perpendicular.
Q.7.	Based on Euclid's postulate, how many line(s) can pass through 3 collinear points?							
	A	infinite	B	3	C	1	D	2
Q.8.	If $AB = CD$, $CD = EF$ and $EF = PQ$, then which one of the following is not true?							
								
	A	$AB = PQ$	B	$CD = PQ$	C	$AB = EF$	D	$AB \neq CD$
Q.9.	Euclid divided his famous treatise "The Elements" into							
	A	11 chapters	B	13 chapters	C	12 chapters	D	14 chapters
Q.10.	In ancient India, Altars with combination of shapes like rectangles, triangles and trapeziums were used for							
	A	Public worship	B	Household rituals	C	Both (a) and (b)	D	None of these
	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.11.	Assertion(A): A straight line can be drawn joining any two points. Reason(R): Two distinct lines can have only one point common.
Q.12.	Assertion(A): If a point C be the mid-point of a line segment AB, then the relation among AC, BC and AB is $AC = CB = \frac{1}{2} AB$. Reason(R): If appoint P be the mid-point of MN and C is the mid-point of MP, then the relation between MC and MN is $MC = \frac{1}{4} MP$.
	Questions of 2 marks each
Q.13.	If $AB = 16$ cm, $CD = 2$ times 8 cm, $PQ = \frac{1}{2} AB$ and $RS = \frac{1}{2} CD$. Are RS and PQ equal? What axiom is used for proving this?
Q.14.	It is known that $x + y = 10$. Is it true to say that $x + y + p = 10 + p$? State the reason with the axiom used.
Q.15.	In the figure, if $\angle 1 = \angle 3$, $\angle 2 = \angle 4$ and $\angle 3 = \angle 4$, write the relation between $\angle 1$ and $\angle 2$, using an Euclid's axiom. 
	Questions of 3 marks each
Q.16.	If $AB = AC$ and $AP = AQ$. Can you say that $BP = CQ$? Which axiom is used here? 
Q.17.	Prove that an equilateral triangle can be constructed on any given line segment.

Q.18.	A and B are the centres of two intersecting circles. Prove that $AC = AB = BC$. State the Euclid's axiom used. 
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	ANSWERS
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	Q.1.	C	Q.2.	B	Q.3.	B	Q.4.	A
	Q.5.	D	Q.6.	A	Q.7.	C	Q.8.	D
	Q.9.	B	Q.10.	A	Q.11.	b	Q.12.	c
	Q.13.	Things which are halves of the same things are equal to one another.	Q.14.	If equals be added to equals, the wholes are equal.	Q.15.	Things which are equal to the same thing are equal to one another	Q.16.	If equals are subtracted from equals, then the remainders are equal.
	Q.18.	Things which are equal to the same thing are equal to one another						
