INDIAN SCHOOL AL WADI AL KABIR

Class IX, Mathematics

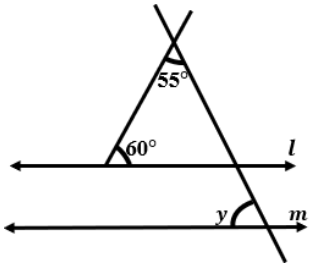
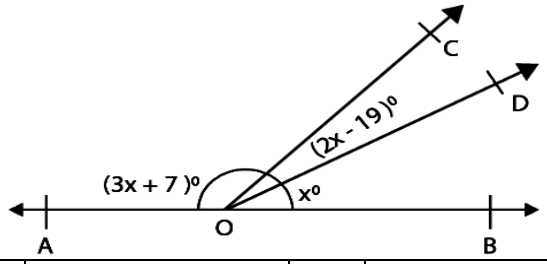
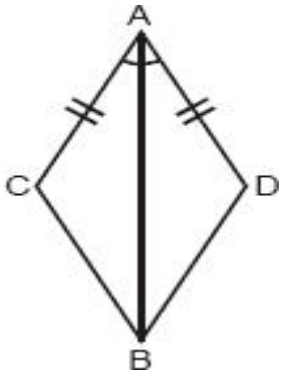
SAMPLE PAPER SET - I

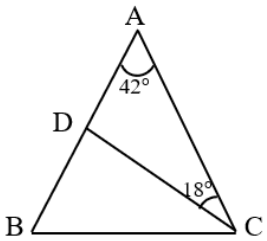
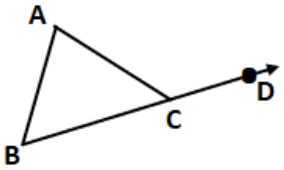
MCQ, ASSERTION & REASONING, CASE STUDY

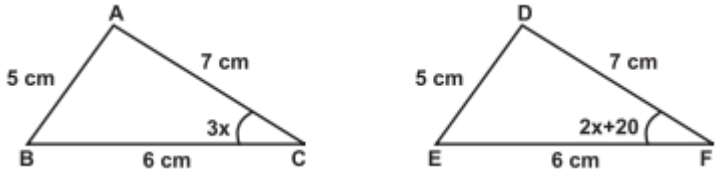
29-08-2021

OBJECTIVE TYPE (1 Mark)

Q.1.	Simplify: $(8+3\sqrt{5})\times(8+3\sqrt{5})$							
	A	$109+48\sqrt{5}$	B	19	C	$109+16\sqrt{5}$	D	$19+48\sqrt{5}$
Q.2.	Taking $\sqrt{3}=1.732$, evaluate $\frac{\sqrt{3}}{2}+11$							
	A	1.707	B	11.414	C	11.866	D	0.976
Q.3.	The value of a and b, if $\frac{1}{4-\sqrt{3}}=a+b\sqrt{3}$ is							
	A	$a=\frac{4}{13}, b=\frac{1}{13}$	B	$a=\frac{-4}{13}, b=\frac{1}{13}$	C	$a=\frac{1}{13}, b=\frac{4}{13}$	D	$a=4, b=1$
Q.4.	Simplified value of $(81)^{\frac{-1}{4}}$ x $\sqrt[4]{81}$ is							
	A	3	B	9	C	0	D	1
Q.5.	If $(\sqrt{2}, -\sqrt{2})$, lies on the graph 4x -3 ay = $\sqrt{2}$, , then the value of a equals							
	A	1	B	-2	C	0	D	-1
Q.6.	The geometric representation of x = $-$ 2 meets the x -axis at							
	A	(2 ,0)	B	$(-2, 0)$	C	(0, 2)	D	$(0, -2)$
Q.7.	An angle is 18° less than its complementary angle. The measure of this angle is							
	A	36°	B	48°	C	83°	D	81°

Q.8.	In the adjoining figure, if $l \parallel m$ then $\angle y$ is 							
	A	105°	B	65°	C	45°	D	115°
Q.9.	If AOB is a straight line then x is 							
	A	64°	B	15°	C	32°	D	30°
Q.10.	An exterior angle of a triangle is 105° and its two interior opposite angles are equal, then the value of these equal angles are							
	A	52°	B	$\left(52\frac{1}{2}\right)°$	C	105°	D	$\left(37\frac{1}{2}\right)°$
Q.11.	In an isosceles triangle AB = AC and BA is produced to D, such that AB = AD, then ∠BCD is							
	A	70°	B	45°	C	60°	D	90°
Q.12.	In the given figure, the congruency rule used in proving ΔACB ≅ Δ ADB, is 							
	A	ASA	B	AAS	C	SAS	D	RHS

Q.13.	In the given figure, AB = AC, ∠A = 42° and ∠ACD = 18°. ∠BCD is equal to 							
	A	55°	B	69°	C	45°	D	51°
Q.14.	If the mean of five observations x, x+4, x+8, x+12 and x+16 is 15, then the value of x is							
	A	5	B	6	C	7	D	8
Q.15.	The median of the numbers 45, 34, 65, 48, 93, 54, 22, 86, 45, 87 is							
	A	48	B	51	C	54	D	45
Q.16.	If x > 0 and y < 0, then the point (x, y) lies in ..... quadrant.							
	A	Second	B	Fourth	C	First	D	Third
Q.17.	Which of the points A(-5,0), B(0,-3),C(3,0) and D(0,-4) are closer to the origin?							
	A	Point A	B	Point C	C	Point D	D	Both the points B and C
Q.18.	What type of polygon is formed by joining the points (0,0),(0,3),(0,4) and (4,0)							
	A	Triangle	B	Rectangle	C	Rhombus	D	Pentagon
Q.19.	In adjoining figure if ∠ A = (3 x +2)°, ∠ B = (x -3) °, ∠ ACD = 133°, then ∠ A is 							
	A	80°	B	88°	C	101°	D	98°
Q.20.	If angle with measure x and y form a complementary pair, then angles with which of the following measures will form a supplementary pair?							
	A	$(x-23)°$, $(y+23)°$	**B**	$(x+51)°$, $(y+39)°$	**C**	$(x-51)°$, $(y-39)°$	**D**	No such pair is possible

Q.21.	If the area of an equilateral triangle is $81\sqrt{3}\ cm^2$, then the semi perimeter of triangle is							
	A	24 cm	B	47 cm	C	54 cm	D	27 cm
Q.22.	The base of a right triangle is 8 cm and hypotenuse are 17 cm. Its area will be							
	A	$60\ cm^2$	B	$40\ cm^2$	C	$48\ cm^2$	D	$80\ cm^2$
Q.23.	Area of an equilateral triangle is always a/an ..... number [Given that length of each side is rational]							
	A	Integer	B	Not a real number	C	Rational	D	Irrational
Q.24.	In ΔPQR, $\angle R = \angle P$, QR = 4 cm and PR= 5 cm ,then PQ is							
	A	4 cm	B	5 cm	C	1 cm	D	9 cm
Q.25.	In the given figure , the value of x is 							
	A	4°	B	32°	C	20°	D	180°
Q.26.	The value of $\sqrt[4]{625^{-2}}$ is							
	A	25	B	$\frac{1}{50}$	C	50	D	$\frac{1}{25}$
Q.27.	The value of $\sqrt{63}+\sqrt{112}+\sqrt{147}$ is							
	A	$4\sqrt{7}+7\sqrt{3}$	B	$7\sqrt{7}+7\sqrt{3}$	C	$7\sqrt{7}+4\sqrt{3}$	D	$4\sqrt{7}+4\sqrt{3}$

ASSERTION AND REASONING

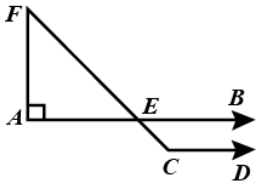
DIRECTION: In each of the following questions, a statement of Assertion is given followed by a corresponding statement of Reason just below it. Of the statements, mark the correct answer as

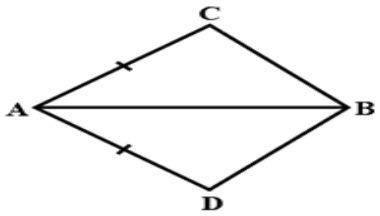
(a) Both assertion and reason are true and reason is the correct explanation of assertion.

(b) Both assertion and reason are true but reason is not the correct explanation of assertion.

(c) Assertion is true but reason is false.

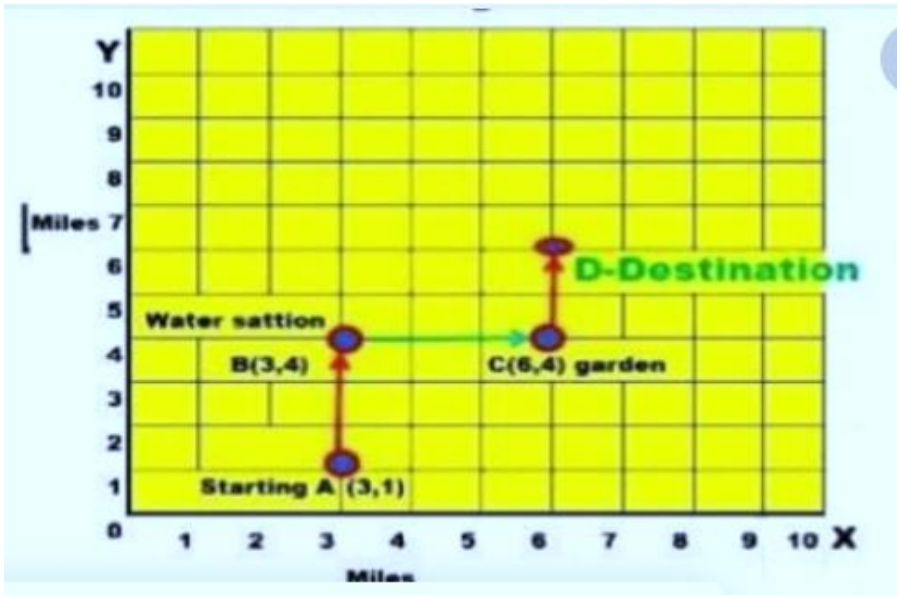
(d) Assertion is false but reason is true.

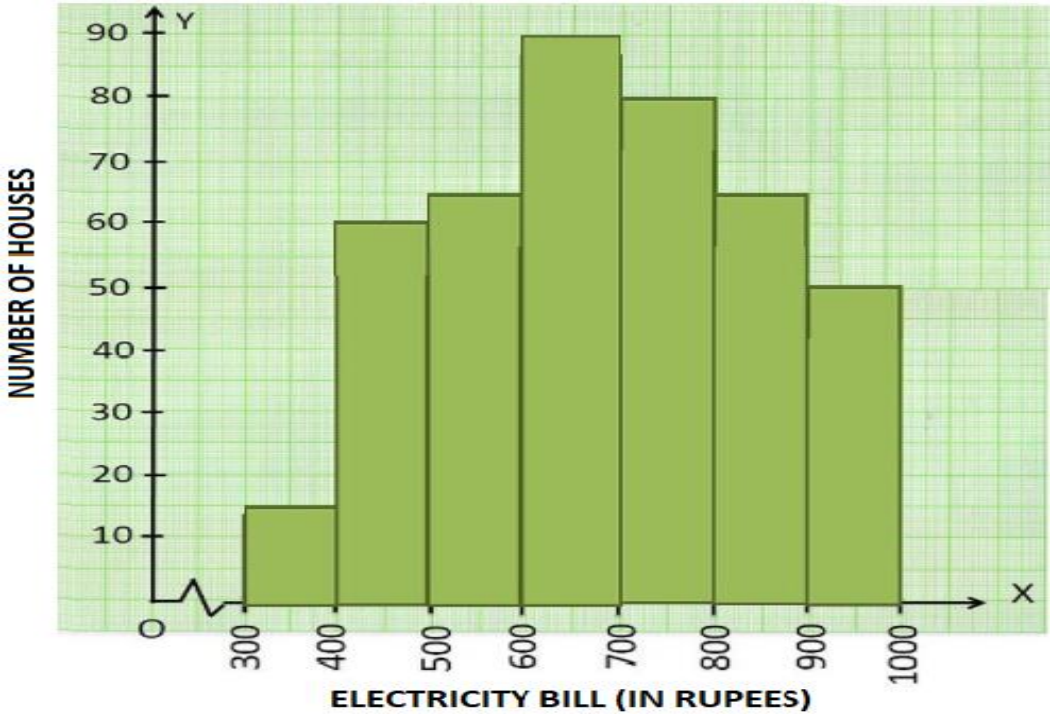
Q.28.	Assertion: A linear equation $2x + 3y = 5$ has a unique solution. Reason: A linear equation in two variables has infinitely many solutions.
Q.29.	Assertion: The point (1, 1), is the solution of $x + y = 2$. Reason: Every point which satisfy the linear equation is a solution of the equation.
Q.30.	Assertion: The equation of $2x + 5 = 0$ and $3x + y = 5$ both have degree 1. Reason: The degree of a linear equation in two variables is 2.
Q.31.	Assertion: If angles 'a' and 'b' form a linear pair of angles and $a = 40°$, then $b = 150°$. Reason: Sum of linear pair of angles is always 180°.
Q.32.	Assertion: If two internal opposite angles of a triangle are equal and external angle is given to be 110°, then each of the equal internal angle is 55°. Reason: A triangle with one of its angle 90°, is called a right triangle.
Q.33.	Assertion: In the given figure, if AB ∥ CD and ∠ F = 30°, then ∠FCD is 120°.  Reason: If two parallel lines are intersected by a transversal, then co-interior angles are equal.
Q.34.	Assertion: If the bisector of the vertical angle of a triangle bisects the base of the triangle, then the triangle is equilateral. Reason: If three sides of one triangle are equal to three sides of the other triangle, then the two triangles are congruent.

Q.35.	Assertion: In a quadrilateral ACBD, AC = AD and AB bisects ∠A (see figure) then $\Delta ACB \cong \Delta ADB$ by SAS congruence criteria.  Reason: Two triangles are congruent if two sides and the included angle of one triangle is equal to the corresponding two sides and included angle of the other triangle.
Q.36.	Assertion: Angles opposite to equal sides of a triangle are equal. Reason: Sides opposite to equal angles of a triangle are not equal.

CASE STUDY QUESTION_1								
Q.37.	To judge the preparation of students of class IX on topic "Number System", Mathematics teacher presents two numbers on the presentation (as shown in figure) in an online class and asks some questions about the two numbers. 							
	(i) Write the decimal form of $\frac{2}{11}$							
	A	$0.\overline{81}$	B	$0.\overline{18}$	C	$0.\overline{17}$	D	$\overline{0.71}$
	(ii)Write the $\frac{p}{q}$ form of $0.3\overline{8}$							
	A	$\frac{5}{18}$	B	$\frac{7}{18}$	C	$\frac{11}{18}$	D	$\frac{1}{18}$
	(iii) Write the decimal expansion of $\frac{2}{11}$							
	A	Non terminating	B	Terminating	C	Non terminating recurring	D	Non terminating non-recurring
	(iv) If $\frac{p}{q}$ form of $0.3\overline{8}$ is $\frac{m}{n}$, then value of (m + n) is							
	A	25	B	11	C	29	D	23
	(v) Write the decimal expansion of $0.3\overline{8}$							
	A	Non terminating	B	Terminating	C	Non terminating non-recurring	D	Non terminating recurring

	CASE STUDY QUESTION_2							
Q.38.	According to a data, around one and a half lakh persons die due to road accidents per year in India. According to a research, mostly accidents were occurred due to ignorance of traffic rules. To spread awareness about traffic rules, Public schools in Delhi initiate a step in this matter and provide all schools of Delhi the traffic signal board indicating SCHOOL AHEAD is an equilateral triangle with side a.  							
	(i) If the perimeter of the triangle is 270 cm, then the side of the triangle is							
	A	40cm	B	90cm	C	60cm	D	70cm
	(ii) Find the value of the semi perimeter S.							
	A	70cm	B	90cm	C	135cm	D	100cm
	(iii) Find the area of the signal board in the above figure.							
	A	$200\sqrt{3}cm^2$	B	$600\sqrt{3}cm^2$	C	$900\sqrt{3}cm^2$	D	$2025\sqrt{3}cm^2$
	(iv) Find the area of 8 such traffic signal board.							
	A	$16,400\sqrt{3}\ cm^2$	B	$2025\sqrt{3}\ cm^2$	C	$16,000\sqrt{3}\ cm^2$	D	$16,200\sqrt{3}\ cm^2$
	(v) Find the cost of painting a signal board, if the rate of painting is ₹ $3/cm^2$.							
	A	₹ $6,075\sqrt{3}$	B	₹ 60,055	C	₹ 60,075	D	₹ $675\sqrt{3}$

	CASE STUDY QUESTION_3							
Q.39.	Arun is participating in 8 miles walk. The organizers used a square coordinate grid to plot the course. The starting point is at A (3, 1). At B (3, 4), there's a water station to make sure the walkers stay hydrated. From water station, the walkway turns right and at C (6,4) a garden is situated to keep walkers fresh. From the garden, the walkway turns left and finally, Arun reaches at destination D to complete 8 miles.  							
	(i) How far is the water station B from the starting point A?							
	A	4 miles	B	3 miles	C	1 mile	D	5 miles
	(ii) How far is the water station B from garden C?							
	A	3 miles	B	4 miles	C	2 miles	D	1 mile
	(iii) What is the ordinate of the starting point?							
	A	3	B	5	C	8	D	1
	(iv) What is the abscissa of point B?							
	A	6	B	2	C	3	D	5
	(v) What are the coordinates of destination point D?							
	A	(6,6)	B	(3,1)	C	(3,4)	D	(6,4)

	CASE STUDY QUESTION_4							
Q.40.	The random survey is conducted in a locality with respect to the electricity bill payment for a month. It is represented here through the given graph. 							
	(i) What is the size of the class interval?							
	A	300	B	1000	C	200	D	100
	(ii) Which class has the highest frequency?							
	A	700-800	B	600-700	C	300-400	D	900-1000
	(iii) How many people (number of houses) spent ₹ 900 and more?							
	A	50	B	115	C	65	D	90
	(iv) Which two classes have the same frequency?							
	A	400-500 and 500-600	B	400-500 and 900-1000	C	500-600 and 800-900	D	700-800 and 800-900
	(v) How many people (number of houses) spent less than ₹ 700?							
	A	250	B	230	C	140	D	310

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Answers								
Answers	1	A	2	C	3	A	4	D
	5	D	6	B	7	A	8	B
	9	C	10	B	11	D	12	C
	13	D	14	C	15	B	16	B
	17	D	18	A	19	C	20	B
	21	D	22	A	23	D	24	A
	25	C	26	D	27	B	28	d
	29	a	30	c	31	d	32	b
	33	c	34	d	35	a	36	c
	37	(i)B (ii)B(iii)C (iv)A(v)D	38	(i)B(ii)C(iii)D (iv)D(v)A	39	(i)B(ii)A(iii)D (iv)C(v)A	40	(i)D(ii)B(iii)A (iv)C(v)B