INDIAN SCHOOL AL WADI AL KABIR

Class IX, Mathematics Sample paper ***- Set II***

MCQ, ASSERTION & REASONING, CASE STUDY

29-08-2021

OBJECTIVE TYPE (1 Mark)

Q.1. The coordinates of the point Q are (2, 5). Its distance from the Y-axis is _____units.

	A	2	**B**	5	**C**	7	**D**	3

Q.2. A rational number between $\sqrt{2}\ and\ \sqrt{3}$ is

	A	$\frac{\sqrt{2}+\sqrt{3}}{2}$	**B**	$\frac{\sqrt{2}\times\sqrt{3}}{2}$	**C**	1.5	**D**	1.8

Q.3. The value of 1.999….in the form $\frac{p}{q}$, where p and q are integers and q$\neq 0$ is

	A	$\frac{19}{10}$	**B**	$\frac{1999}{1000}$	**C**	2	**D**	$\frac{1}{9}$

Q.4. Rationalizing factor of $(1 + \sqrt{2}+\sqrt{3})$ is

	A	2	**B**	$1 + \sqrt{2}-\sqrt{3}$	**C**	4	**D**	$1 + \sqrt{2}+\sqrt{3}$

Q.5. The value of $729^{\frac{-1}{6}}$

	A	$\frac{1}{3}$	**B**	$\frac{-1}{3}$	**C**	$\frac{1}{6}$	**D**	$\frac{-1}{6}$

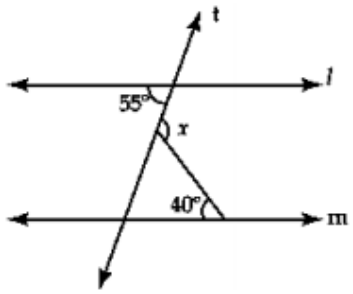
Q.6. The value of a and b if $a + b\sqrt{15} = \frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$

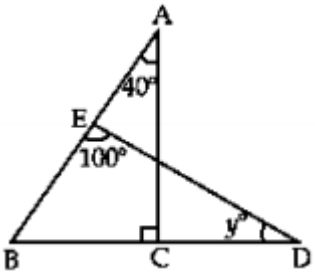
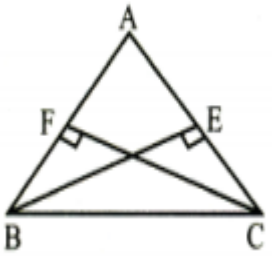
	A	a=1, b=4	**B**	a=2, b=1	**C**	a=1, b=2	**D**	a=4, b=1

Q.7. How many linear equations in x and y can be satisfied by x = 1 and y = 2

	A	One	**B**	Two	**C**	Infinitely many	**D**	Ten

Q.8. In the given figure, if $l \parallel m$, then the value of x is



	A	35°	**B**	40°	**C**	85°	**D**	95°
Q.9.	The angles of a triangle are in the ratio 3:4:5. The largest angle of the triangle is							
	A	75°	**B**	60°	**C**	45°	**D**	90°
Q.10	The angle which is half its supplement is							
	A	60°	**B**	120°	**C**	110°	**D**	130°
Q.11	In the given figure,AC⊥BD. Find y if $\angle BAC = 40°$ and $\angle BED = 100°$ 							
	A	30°	**B**	60°	**C**	80°	**D**	45°
Q.12	In the isosceles triangle ABC, if AB = AC and $\angle A = 40°$, then find the measure of $\angle B$							
	A	40°	**B**	75°	**C**	70°	**D**	140°
Q.13	If $\Delta ABC \cong \Delta PQR$, and $\Delta ABC \ncong \Delta RPQ$, then which of the following is not true?							
	A	BC = PQ	**B**	AC = PR	**C**	AB = PQ	**D**	QR = BC
Q.14	In the given figure, BE = CF then, 							
	A	$\Delta ABE \cong \Delta ACF$	**B**	$\Delta ABE \cong \Delta AFC$	**C**	$\Delta ABE \cong \Delta CAF$	**D**	$\Delta AEB \cong \Delta ACF$
Q.15	The equal sides of an isosceles triangle are 12 cm and its perimeter is 30 cm. The area of the triangle is							
	A	$9\sqrt{15}$ sq.cm	**B**	$6\sqrt{15}$ sq.cm	**C**	$3\sqrt{15}$ sq.cm	**D**	$\sqrt{15}$ sq.cm

Q.16 **CASE STUDY-1**

Rain water harvesting system is a technology that collects and stores rainwater for human use. Amal decided to do rainwater harvesting. He collected rainwater in the underground tank at the rate 30 cubic.cm per second.

Based on above information answer any four questions:

i) What will be the equation formed if volume of water collected in x seconds is taken as y cm^3 ?

A	30x = y	**B**	X = 30y	**C**	30 – x = y	**D**	30 + y = x

ii) What is the type of solution of the equation formed?

A	A unique solution	**B**	Only two solutions	**C**	No solution	**D**	Infinitely many solutions

iii) Write the equation in standard form.

A	30x – y +0=0	**B**	30x +y +0 =0	**C**	30x =y	**D**	30x – y = 0

iv) How much water will be collected in 60 sec?

A	1500cm^3	**B**	2 cm^3	**C**	1800cm^3	**D**	1 cm^3

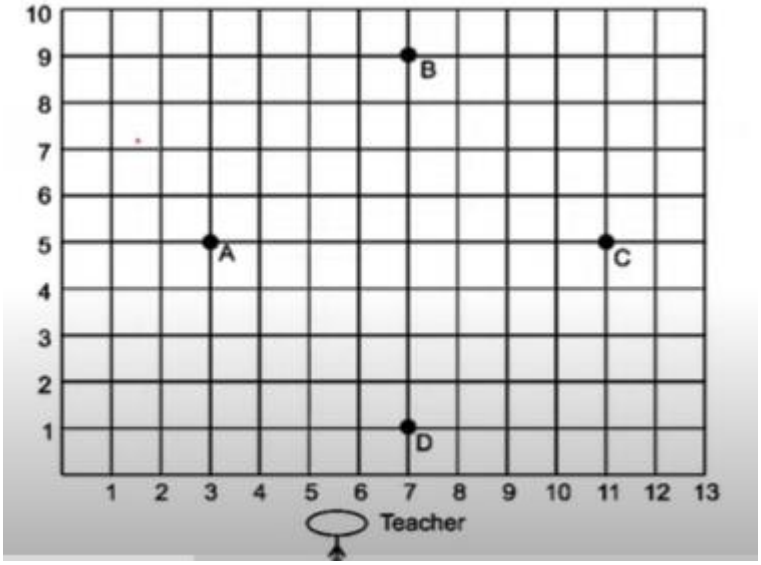
v) How much time will it take to collect water in 900 cm^3 ?

A	20 sec	**B**	50 sec	**C**	40 sec	**D**	30 sec

Q.17

CASE STUDY 2:

Students of a school are standing in rows and columns in their playground for a drill practice. A, B, C, D are the position of four students as shown in the figure.



Based on above information answer the following questions:

i) What are the coordinates of A and B respectively?

A	(3,5) (7,8)	**B**	(5,3) (8,7)	**C**	(3,5) (7,9)	**D**	(5,3) (9,7)

ii) What are the coordinates of C and D respectively?

A	(11,5) (7,1)	**B**	(5,11) (1,7)	**C**	(5,11) (7,1)	**D**	(5,11) (−1,7)

iii) What is the distance between B and D?

A	5 units	**B**	14 units	**C**	8 units	**D**	10 units

iv) What is the distance between A and C?

A	5 units	**B**	14 units	**C**	8 units	**D**	10 units

v) What are the coordinates of the point of intersection of AC and BD?

A	(7,5)	**B**	(5,7)	**C**	(7,7)	**D**	(5,5)

Q18. **CASE STUDY 3:**

According to a data, around one and a half lakh persons die due to road accident per year in India. According to a research, mostly accidents occur due to ignorance of traffic rules.

To spread awareness about traffic rules, Delhi Public school initiated a step in this matter and provided all schools of Delhi the traffic signal board, indicating "SCHOOL AHEAD" is an equilateral triangle with side 'a". Answer any four questions:

i) If the perimeter of the triangle is 180 cm, then find the side of the triangle.

	A	40 cm	**B**	50 cm	**C**	60 cm	**D**	70 cm

ii) Find the value of semi perimeter ''s".

	A	70 cm	**B**	80 cm	**C**	90 cm	**D**	100 cm

iii) If a, b, c are the sides of a triangle, then write the formula to find the perimeter.

	A	2s = a + b + c	**B**	3s = a + b + c	**C**	s = a + b + c	**D**	4s = a + b + c

iv) Find the area of the signal board in the above figure.

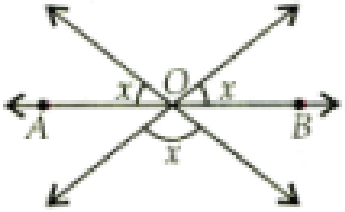
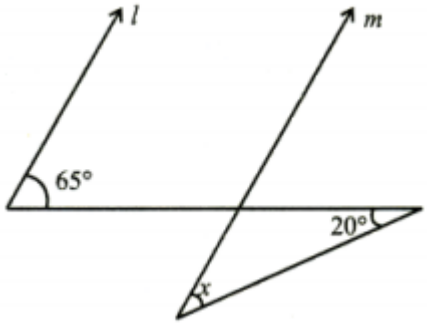
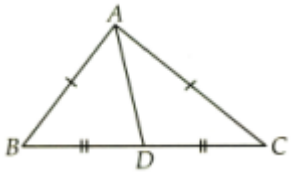
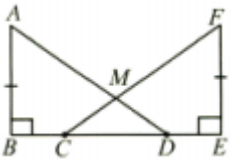
	A	$300\sqrt{3}\ cm^2$	**B**	$600\sqrt{3}\ cm^2$	**C**	$900\sqrt{3}\ cm^2$	**D**	$800\ cm^2$

v) Which message is provided by the above question?

	A	Charity	**B**	To help the poor	**C**	Awareness about traffic rules	**D**	Neatness campaign

Q19.	**CASE STUDY 4:** Two classmates Salma and Anil simplified two different expressions during the revision hour and explained to each other their simplifications. Salma explains simplification of $\frac{\sqrt{2}}{\sqrt{5}+\sqrt{3}}$ by rationalizing the denominator and Anil explains simplifications of $(\sqrt{5}+\sqrt{3})$ $(\sqrt{5}-\sqrt{3})$ using the identity (a + b) (a – b). Answer any four questions: i) What is the conjugate of $(\sqrt{5}+\sqrt{3})$?							
	A	$(\sqrt{5}+\sqrt{3})$	**B**	$(\sqrt{5}-\sqrt{3})$	**C**	$(\sqrt{5}\times\sqrt{3})$	**D**	$(\sqrt{5}\div\sqrt{3})$
	ii) By rationalizing the denominator of $\frac{\sqrt{2}}{\sqrt{5}+\sqrt{3}}$ Salma got the answer:							
	A	$\frac{\sqrt{2}}{\sqrt{5}-\sqrt{3}}$	**B**	$\frac{\sqrt{2}(\sqrt{5}-\sqrt{3})}{2}$	**C**	$\sqrt{5}-\sqrt{3}$	**V**	$\frac{\sqrt{2}(\sqrt{5}+\sqrt{3})}{2}$
	iii) Anil applied _____ identity to solve $(\sqrt{5}+\sqrt{3})$ $(\sqrt{5}-\sqrt{3})$							
	A	(a + b) (a + b)	**B**	(a + b) (a - b)	**C**	(a - b) (a - b)	**D**	(x + a) (x + b)
	iv) $(\sqrt{2}+\sqrt{3})$ $(\sqrt{2}-\sqrt{3})$ = _____							
	A	-1	**B**	1	**C**	5	**D**	-5
	v) Addition of two irrational numbers is _____							
	A	Rational	**B**	Irrational	**C**	Integers	**D**	Whole numbers

Q20.	**Assertion (A)**: A number N when divided by 15 gives the remainder 2. Then the remainder is same when N is divided by 5. **Reason (R)**: $\sqrt{3}$ is an irrational number.							
	A	Both A and R is true, R is the correct explanation of A	**B**	Both A and R is true, R is not the correct explanation of A	**C**	A is true but R is false	**D**	A is false but R is true
Q21.	**Assertion (A)**: The point (0,4) lies on Y-axis **Reason (R):** The x-co-ordinate on the point on Y-axis is zero.							
	A	Both A and R is true, R is the correct explanation of A	**B**	Both A and R is true, R is not the correct explanation of A	**C**	A is true but R is false	**D**	A is false but R is true
Q22.	**Assertion (A)**: If angles 'a' and 'b' form a linear pair of angles and a = 40°, then b = 150° **Reason (R):** Sum of linear pair of angles is always 180°							
	A	Both A and R is true, R is the correct explanation of A	**B**	Both A and R is true, R is not the correct explanation of A	**C**	A is true but R is false	**D**	A is false but R is true

Q23.	Age of father is seven years more than three times the present age of the son. The above statement can be expressed in a linear equation as							
	A	$x-3y-7=0$	**B**	$x+3y+7=0$	**C**	$x+3y-7=0$	**D**	$x-3y+7=0$
Q24.	Find the value of x if AOB is a straight line 							
	A	36°	**B**	60°	**C**	30°	**D**	35°
Q25.	In the given figure, if lines l and m are parallel, then the value of x is _____ 							
	A	65°	**B**	85°	**C**	45°	**D**	20°
Q26.	In ΔABC, if AB = AC and BD = DC, then ∠ADC is 							
	A	60°	**B**	45°	**C**	120°	**D**	90°
Q27.	In the given figure, AB⊥ BE = and EF⊥ BE. Also, BC= DE and AB= EF. Then 							
	A	ΔABD ≅ ΔFEC	**B**	ΔABD ≅ ΔEFC	**C**	ΔABD ≅ ΔCMD	**D**	ΔABD ≅ ΔCEF

Q28.	The base of a right triangle is 8 cm and hypotenuse is 10 cm. its area will be							
	A	24 sq.cm	**B**	40 sq.cm	**C**	48 sq.cm	**D**	80 sq.cm
Q29.	$\sqrt{10} \times \sqrt{15}$) is equal to:							
	A	$6\sqrt{5}$	**B**	$5\sqrt{6}$	**C**	$\sqrt{25}$	**D**	$10\sqrt{5}$
Q30.	Ordinate of all the points on the x-axis is:							
	A	0	**B**	1	**C**	-1	**D**	Any number
Q31.	If (2,0) is a solution of the linear equation, 2x+3y = k, then the value of k is:							
	A	4	**B**	6	**C**	5	**D**	2
Q32.	An exterior angle of a triangle is 105° and its two interior opposite angles are equal. Each of these equal angles is:							
	A	$37\frac{1}{2}°$	**B**	$52\frac{1}{2}°$	**C**	$72\frac{1}{2}°$	**D**	75
Q33.	Find the area of a triangle whose base is 4cm and altitude is 6cm.							
	A	$24cm^2$	**B**	$48cm^2$	**C**	$12cm^2$	**D**	$10cm^2$
Q34.	If the area of an equilateral triangle is $16\sqrt{3}$ cm^2, then the perimeter of the triangle is:							
	A	48cm	**B**	24cm	**C**	12cm	**D**	36cm
Q35.	If one angle of a triangle is equal to the sum of the other two angles, then the triangle is :							
	A	An isosceles triangle	**B**	An obtuse triangle	**C**	An equilateral triangle	**D**	A right-angle triangle.
Q36.	The sides of a triangle are 56cm, 60cm and 52 cm long. Then the area of the triangle is:							
	A	$1322cm^2$	**B**	$1311cm^2$	**C**	$1344cm^2$	**D**	$1392cm^2$
Q37.	Value of $\sqrt[4]{(81)^{-2}}$is:							
	A	$\frac{1}{9}$	**B**	$\frac{1}{3}$	**C**	9	**D**	$\frac{1}{81}$
Q38.	If one of the angles of a triangle is 130°, then the angle between the bisectors of the other two angles can be:							
	A	50°	**B**	65°	**C**	145°	**D**	155°
Q39.	The equation x=7 in two variables can be written as							
	A	1.x +1. y = 7	**B**	1.x + 0. y=7	**C**	0.x +1. y =7	**D**	0.x +0. y = 7

Q40.	$\frac{\sqrt{1}}{\sqrt{9}-\sqrt{8}}$ is equals to:							
	A	$\frac{1}{2}(3 - 2\sqrt{2})$	**B**	$\frac{\sqrt{1}}{3+2\sqrt{2}}$	**C**	$(3 - 2\sqrt{2})$	**D**	$(3+ 2\sqrt{2})$

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