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CLASS 10 MATH TEST PAPER 8

Class 10 - Mathematics

Time Al	lowed: 1 hour and 30 minutes	Maximum Mark	s: 40	
Section A				
1.	The number $(\sqrt{3}+\sqrt{5})^2$ is		[1]	
	a) an irrational number	b) an integer		
	c) a rational number	d) not a real number		
2.	2. If one zero of the polynomial $p(x) = (a^2 + 9)x^2 + 45x + 6a$ is reciprocal of the other, then the value of		[1]	
	a) 2	b) 3		
	c) 0	d) 1		
3.	3. The graph of the linear equation $2x + 5y = 10$ meets the x-axis at the point.		[1]	
	a) (2, 0)	b) (5, 0)		
	c) (0, 5)	d) (0, 2)		
4.	The sum of the digits of a two-digit number is 15. The number obtained by interchanging the digits exceeds the		[1]	
	given number by 9. The number is			
	a) 69	b) 87		
	c) 78	d) 96		
5.	5. Roots of the quadratic equation $2x^2 - 4x + 3 = 0$ are:		[1]	
	a) real and equal	b) No Real		
	c) Real	d) real and distinct		
6.	Rohan's mother is 26 years older than him. Th	e product of their ages 3 years from now will be 360, then	[1]	
	Rohan's present age is			
	a) 6 years	b) 7 years		
	c) 10 years	d) 8 years		
7.	\triangle PQR ~ \triangle XYZ and the perimeters of and \angle	PQR , $\triangle XYZ$ are 30 cm and 18 cm respectively. If QR = 9 cm,	[1]	
	then, YZ is equal to			
	a) 12.5 cm	b) 9.5 cm		
	c) 4.5 cm	d) 5.4 cm		
8.	If $\tan \theta = rac{x}{y}$, then $\cos heta$ is equal to		[1]	
	a) $\frac{y}{\sqrt{x^2-y^2}}$	b) $\frac{x}{\sqrt{x^2-y^2}}$		
	c) $\frac{x}{\sqrt{x^2+x^2}}$	d) $\frac{y}{\sqrt{2+x^2}}$		
9.	$\sqrt{x^{x^2+y^2}}$ Assertion (A): \sqrt{a} is an irrational number. where we have the set of the set	$\sqrt{x^2+y^2}$ here a is a prime number.	[1]	

Assertion (A): \sqrt{a} is an irrational number, where a is a prime number. 9.

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Reason (R): Square root of any prime number is an irrational number.

	a) Both A and R are true and R is the correct	b) Both A and R are true but R is not the	
	explanation of A.	correct explanation of A.	
	c) A is true but R is false.	d) A is false but R is true.	
1	Assertion (A): Graph of linear polynomial always meets x-axis at 3 points.		
]	Reason (R): Degree of linear polynomial is one.		
	a) Both A and R are true and R is the correct	b) Both A and R are true but R is not the	
	explanation of A.	correct explanation of A.	

d) A is false but R is true.

Section B

- 11.Prove that $2 + 3\sqrt{3}$ is an irrational number. It is given that $\sqrt{3}$ is an irrational number.[2]12.If α and β are the zeros of a quadratic polynomial such that $\alpha + \beta = 24$ and $\alpha \beta = 8$, find a quadratic[2]polynomial having α and β as its zeros.[2]
- 13. Solve the quadratic equation by factorization:

c) A is true but R is false.

$$4x^2 + 4bx - (a^2 - b^2) = 0$$

10.

14. In figure, D and E are points on AB and AC respectively, such that DE || BC. If AD = $\frac{1}{3}$ BD, AE = 4.5 cm, find [2] AC.



Section C

15. A train travels at a certain average speed for a distance of 54 km and then travels a distance of 63 km at an average speed of 6 km/hr more than the first speed. If it takes 3 hours to complete the total journey, what is its first speed?

OR

The area of an isosceles triangle is 60 cm^2 and the length of each one of its equal sides is 13 cm. Find its base.

OR

16. S and T are points on sides PR and QR of \triangle PQR such that \angle P = \angle RTS. Show that \triangle RPQ $\sim \triangle$ RTS.

17. Find the acute angle θ , when $\frac{\cos \theta - \sin \theta}{\cos \theta + \sin \theta} = \frac{1 - \sqrt{3}}{1 + \sqrt{3}}$.

If tan A = n tanB and sin A = m sinB, then prove that $\cos^2 A = \frac{m^2 - 1}{n^2 - 1}$ Section D

Question No. 18 to 21 are based on the given text. Read the text carefully and answer the questions:

A seminar is being conducted by an Educational Organisation, where the participants will be educators of different subjects. The number of participants in Hindi, English and Mathematics are 60, 84 and 108 respectively.

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[2]

[3]

[3]

[4]



- 18. What is the maximum number of participants that can be accommodated in each room if there are multiple rooms, and in each room, the same number of participants are to be seated, and all of them are in the same subject?
- 19. What is the minimum number of rooms required during the event?
- 20. Show that the product of two numbers 60 and 84 is equal to the product of their HCF and LCM.
- 21. What is the LCM of two numbers if their product is 1080 and their HCF is 30?

Question No. 22 to 25 are based on the given text. Read the text carefully and answer the questions: [4]

A heavy-duty ramp is used to winch heavy appliances from street level up to a warehouse loading dock. If the ramp is 2 meter high and the incline is 4 meter long.





22. What angle does the dock make with the street?

23. How long is the base of the ramp? (In round figure)

- 24. If the ramp is inclined at the angle of 45°, what is the height of the ramp? Use $\sqrt{2}$ = 1.41
- 25. If the ramp is inclined at an angle of 45°, what is the length of ramp?

Section E

26. Draw the graphs of the equations x - y + 1 = 0 and 3x + 2y - 12 = 0. Determine the co-ordinates of the vertices of [5] the triangle formed by these lines and the X-axis and shade the triangular region.