# AllCanMath

## **CLASS 10 MATH TEST PAPER 13**

### **Class 10 - Mathematics**

#### **Time Allowed: 45 minutes** Maximum Marks: 25 Section A [1] If $ax + by = a^2 - b^2$ and bx + ay = 0, then the value of x + y is: 1. a) $a^2 + b^2$ b) a - b c) a + b d) $a^2 - b^2$ The value of k for which the pair of linear equations 5x + 2y - 7 = 0 and 2x + ky + 1 = 0 don't have a solution, is: [1] 2. b) $\frac{5}{4}$ a) 5 d) $\frac{5}{2}$ c) $\frac{4}{5}$ Two lines are given to be parallel. The equation of one of these lines is 5x - 3y = 2. The equation of the second 3. [1] line can be: a) -15x - 9y = 5b) -15x + 9y = 5c) 15x + 9y = 5d) 9x - 15y = 64. The value of k, if (6, k) lies on the line represented by x - 3y + 6 = 0, is [1] b) 4 a) 12 d) -12 c) -4 [1] The roots of the quadratic equation $x^2 - 4 = 0$ is/are: 5. a) -4, 4 b) 2 only c) -2, 2 d) 4 only If the roots of the equation $(a - b)x^2 + (b - c)x + (c - a) = 0$ are equal. Then \_\_\_\_\_. [1] 6. a) 2c = a + bb) 2a= b+ c d) $\frac{1}{b} = \frac{1}{a} + \frac{1}{c}$ c) 2b = a + cThe ratio of the sum and product of the roots of the quadratic equation $5x^2 - 6x + 21 = 0$ is: [1] 7. a) 5:21 b) 21:5 c) 7:2 d) 2:7 If $\sin \theta = 1$ , then the value of $\frac{1}{2} \sin \left( \frac{\theta}{2} \right)$ is: [1] 8. a) $\frac{1}{\sqrt{2}}$ b) 0 c) $\frac{1}{2\sqrt{2}}$ d) $\frac{1}{2}$ If cosec A = $\frac{7}{5}$ , then value of tan A·cos A is: 9. [1] a) $\frac{2\sqrt{6}}{5}$ b) $\frac{24}{49}$

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18.	. Read the following text carefully and answer the questions that follow:		[4]
	Se	ection B	
	c) A is true but R is false.	d) A is false but R is true.	
	explanation of A.	correct explanation of A.	
	<b>Reason (K):</b> $\tan \theta = \frac{\tan \theta}{\cos \theta}$	b) Both A and R are true but R is not the	
17.	<b>Assertion (A):</b> In a right-angled triangle, if $\cos\theta = \frac{1}{2}$ and $\sin\theta = \frac{\sqrt{2}}{2}$ , then $\tan\theta = \sqrt{3}$ <b>Reason (B):</b> $\tan\theta = \frac{\sin\theta}{2}$		[1]
15	c) A is true but R is false.	d) A is false but R is true.	[4]
	explanation of A.	correct explanation of A.	
	a) Both A and R are true and R is the correct	b) Both A and R are true but R is not the	
	$\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}.$		
	<b>Reason (R):</b> The pair of linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ is inconsistent if $a_1 = b_1 + c_1$		
16.	<b>Assertion (A):</b> The system of linear equations $3x + 5y - 4 = 0$ and $15x + 25y - 25 = 0$ is inconsistent.		[1]
	c) $\frac{4}{7}$	d) $\frac{3}{7}$	
	a) $\frac{1}{7}$	b) $\frac{2}{7}$	
15.	The probability that a non leap year selected at random will have 53 Sundays is		[1]
	c) $\frac{1}{6}$	d) $\frac{1}{12}$	
	a) $\frac{5}{18}$	b) $\frac{1}{9}$	
14.	Two dice are rolled together. What is the probability	of getting a sum greater than 10?	[1]
	c) $\frac{11}{25}$	d) $\frac{13}{25}$	
	a) $\frac{4}{5}$	b) $\frac{12}{25}$	
	probability that the number on the ticket is a multiple $\sim 2$		
13.	There are 25 tickets numbered as 1, 2, 3, 4, 25 res	spectively. One ticket is drawn at random. What is the	[1]
	c) 2 : 1	d) 3 : 1	
	a) 5 : 1	b) 4 : 1	
	CIII IS		
12.	The ratio of the total surface area to the lateral surface	ce area of a cylinder with base radius 80 cm and height 20	[1]
	c) 8 : 9	d) 4 : 3	
	a) 9 : 8	b) 3 : 4	
	ratio between their volumes is		
11.	The radii of the base of a cylinder and a cone are in the ratio 3 :4. If they have their heights in the ratio 2 : 3, the		[1]
	c) <sub>45</sub> °	d) 90 <sub>0</sub>	
	a) 0 <sub>0</sub>	p) <sup>30</sup> °	
10.	For what value of $\theta$ , $\sin^2\theta + \sin\theta + \cos^2\theta$ is equal to	2?	[1]
	c) $\frac{3}{7}$	d) $\frac{7}{5}$	_
	. 5	7	

Shreya has a field with a flowerbed and grassland. The grassland is in the shape of rectangle while flowerbed is

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in the shape of square. The length of the grassland is found to be 3 m more than twice the length of the

flowerbed. Total area of the whole land is 1260 m<sup>2</sup>.



- i. If the length of the square is x m then find the total length of the field. (1)
- ii. What will be the perimeter of the whole figure in terms of x? (1)
- iii. Find the value of x if the area of total field is  $1260 \text{ m}^2$ . (2)

### OR

Find area of grassland and the flowerbed separately. (2)

## 19. Read the following text carefully and answer the questions that follow:

Governing council of a local public development authority of Dehradun decided to build an adventurous playground on the top of a hill, which will have adequate space for parking.



After survey, it was decided to build rectangular playground, with a semi-circular area allotted for parking at one end of the playground. The length and breadth of the rectangular playground are 14 units and 7 units, respectively. There are two quadrants of radius 2 units on one side for special seats.

i. What is the total perimeter of the parking area? (1)

- ii. What is the total area of parking and the two quadrants? (1)
- iii. What is the ratio of area of playground to the area of parking area? (2)

# OR

Find the cost of fencing the playground and parking area at the rate of  $\gtrless$  2 per unit. (2)