

# Punjab Board Class 10 Maths Question Paper 2016 Set-4B

04/B

SS

1037

## ANNUAL EXAMINATION SYSTEM MATHEMATICS

Time allowed: 3 Hours

Maximum Marks:50

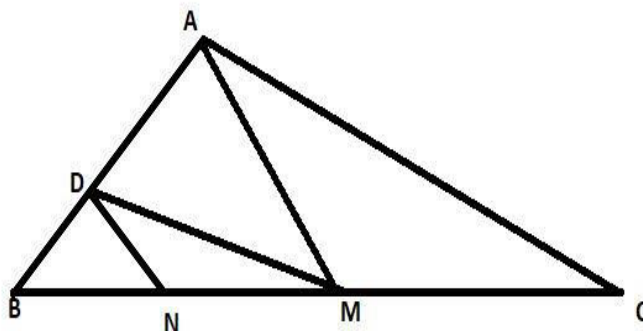
1. (i) Find the value of  $x$  in the pair of linear equations \_\_\_\_\_ and \_\_\_\_\_ 1  
 (ii) Write first four terms of AP, when first term  $a = -2$  and common difference  $d=0$  1  
 (iii) Fill in the blanks (?): 1  
 If,  $\triangle ABC \sim \triangle DEF$  then,  $\frac{(AABC)}{ar(ADEF)} = \frac{AB}{DE}$  \_\_\_\_\_  
 (iv) Evaluate :  $\cos 48^\circ - \sin 42^\circ$ . 1  
 (v) The length, breadth and height of the hall is 15 m, 9m, 7m respectively. Find the area of its floor. 1
2. Given that  $HCF(306, 657) = 9$ , find  $LCM(306, 657)$ . 2
3. Find a quadratic polynomial, the sum and product of whose zeroes 2 and -3, respectively. 2
4. Find the roots of quadratic equation  $2x^2 - \dots$ , if they exist. 2  

**Or**

 Find two consecutive odd positive integers, sum of whose squares 130. 2
5. Find the sum of the first 15 multiplies of 9. 2  

**Or**

 Find the 29 th term of AP whose 11th term is 38 and the 16th term is 73. 2
6. In figure, if  $DM \parallel AC$  and  $DN \parallel AP$ . Prove that \_\_\_\_\_ 2



Let  $\triangle ABC \sim \triangle DEF$  and their areas be, respectively,  $64 \text{ cm}^2$  and  $121 \text{ cm}^2$ . If  $MN = 2.1 \text{ cm}$ , find  $BC$ .

7. Draw a circle of radius 2.5 cm. From a point 6 cm away from its centre, construct the pair of tangents to the circle and measure their lengths. 2
8. A child has a die whose six faces show the letters as given below: 2

E

A

B

C

E

D

The die is thrown once. What is the probability of getting (i) B ? (ii) D?

9. The cost of 5 oranges and 3 apples is Rs 46 and the cost of 3 oranges and 5 apples is Rs 74. Find the cost of an orange and an apple. 3

Or

Solve the pair of linear equations  $2x + y = 5$  and  $3x - y = 5$  graphically. 3

10. D and E are points on the sides CA and CB respectively of a triangle ABC right angled at C. Prove that  $AE^2 + BD^2 = AD^2 + BE^2$  3

11. Find the area of the triangle ABC formed by the points A(-5, -1), B (3, -5) and C (5, 2). 3

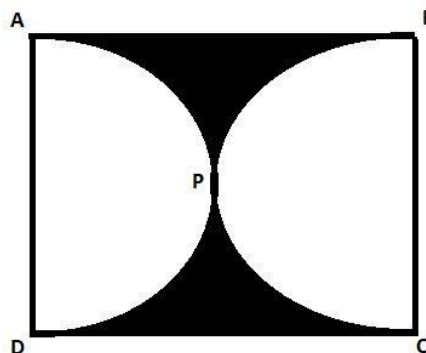
12. Given  $\operatorname{cosec} A = \frac{17}{8}$  calculate all other trigonometric ratios. 3

13. A kite is flying at a height of 60 m above the ground. The string attached to the kite is temporarily tied to a point on the ground. The inclination of the string with the ground is  $60^\circ$ . Find the length of the string, assuming that there is no slack in the string. 3

14. The length of the minute hand of a clock is 14 cm. Find the area swept by the minute hand in 10 minutes. 3

Or

Find the area of the shaded region in figure, if ABCD is a square of side 28 cm and APD and BPC are two semicircles. 3



15. The following table shows the ages of the patients admitted in a hospital during a year : 3

| Age (in years)     | 5-15 | 15-25 | 25-35 | 35-45 | 45-55 | 55-65 |
|--------------------|------|-------|-------|-------|-------|-------|
| Number of patients | 11   | 6     | 21    | 23    | 5     | 14    |

Find the mode of the data given above.

Or

Consider the following distribution of daily wages of 50 workers of a factory. 3

| Daily wages (in rs) | 100-120 | 120-140 | 140-160 | 160-180 | 180-200 |
|---------------------|---------|---------|---------|---------|---------|
| Number of workers   | 12      | 14      | 8       | 6       | 10      |

Find the mean daily wages of the workers of the factory.

16. In a right triangle, the square of the hypotenuse is equal to the squares of the other two sides. Prove it. 5

Or

In an equilateral triangle ABC, D is a point on side BC such that  $AD^2 = BD \cdot DC$ . Prove that  $AD \perp BC$ . 5

17. Two cubes each of volume  $125 \text{ cm}^3$  are joined end to end. Find the surface area of the resulting cuboid. 5

Or

A cylindrical bucket, 32 cm high and with radius of base 18 cm, is filled with sand. This bucket is emptied on the ground and a conical heap of sand is formed. If the height of the conical heap is 24 cm, find the radius and slant height of the heap. 5