

SUMMATIVE ASSESSMENT - I, 2016-17

6N2FOC0

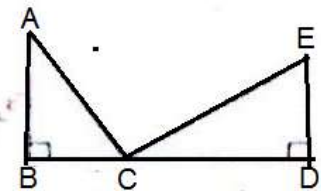
MATHEMATICS Class - X

SECTION - A: Question numbers 1 to 4 carry one mark each

- In $\triangle ABC$, D and E are point on side AB and AC resp. such that $DE \parallel BC$. if $AE = 2$ cm , $AD = 3$ cm and $BD = 4.5$ cm then find CE
- Express $\operatorname{Cosec} 48^\circ + \tan 88^\circ$ in term of t- ratio of angle 00 and 45°
- Find the value of $(\sec^2\theta - 1) \cdot \cot^2\theta$
- Write the empirical relationship between the three measures of central tendency

SECTION-B : Question numbers 5 to 10 carry two marks each.

- Express 5050 as product of its prime factors. Is it unique?
- Write down the decimal expansion of $\frac{76}{6250}$, without actual division
- Find whether the lines representing the following pair of linear equation intersect at a point, are parallel or coincident : $\frac{3}{2}x + \frac{5}{3}y = 7$ and $\frac{3}{2}x + \frac{2}{3}y = 6$
- In given figure $\angle B = 90^\circ$ and $\angle D = 90^\circ$. If $AB = 12$ cm, $BC = 5$ cm, $CD = 6$ find the measure of $AC + CE$.

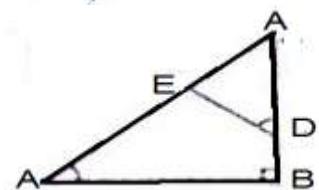
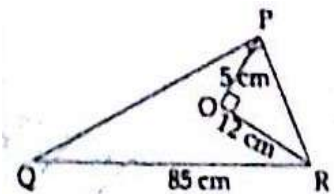


- Take $A = 60$ and $B = 30$. Write the value of $\cos A$, $\cos B$ and $\cos(A+B)$. Is $\cos(A+B) = \cos A + \cos B$
- In a class test, 50 students obtained marks are as follows. Find the modal class and the median class

Marks	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100
Number	4	6	25	10	5

SECTION - D

- Find the greatest number of six digit number exactly divisible by 18, 24 and 36.
- Using division algorithm find quotient and remainder dividing $x^3 + 13x^2 + x - 2$ by $2x + 1$
- if α and β are zeroes of $4x^2 - x - 4$, find quadratic polynomial whose zeroes are $\frac{1}{2\alpha}$ and $\frac{1}{2\beta}$
- Solve by elimination $3x = y + 5$ and $5x - y = 11$
- In given figure $OP = 5$ cm and $OR = 12$ cm and $QR = 85$ cm find the area of $\triangle PQR$
- In $\triangle ABC$ $\angle ADE = \angle B$ then prove that $\triangle ADE \sim \triangle ABC$. also if $AD = 7.6$ cm , $BE = 4.2$ cm and $BC = 4.4$ cm, then find DE



17 If $3 \tan A = 4$ then prove that : (i) $\sqrt{\frac{\sec A - \operatorname{cosec} A}{\sec A + \operatorname{cosec} A}} = \frac{1}{\sqrt{3}}$ (ii) $\sqrt{\frac{1 - \sin A}{1 + \cos A}} = \frac{1}{2\sqrt{2}}$

18. Prove the identity: $\frac{1}{\operatorname{cosec} \theta + \cot \theta} - \frac{1}{\sin \theta} = \frac{1}{\sin \theta} - \frac{1}{\operatorname{cosec} \theta - \cot \theta}$

19, Find the mean of the following distribution:

Class	0 - 6	6 – 12	12 – 18	18 – 24	24 – 30
Frequency	7	5	10	12	2

20 The following table gives the literacy rate of 40 cities :

Literacy rate (in %)	30-40	40-50	50-60	60-70	70 - 80	80-90
Number of odes	6	7	10	6	8	3

Find the modal literacy rate.

SECTION - D Question numbers 21 to 31 carry four marks each

21. A sweet shopkeeper prepares 396 gulab jarnuns and 342 ras-gullas. He packs than in 4 containers. Each container consist of either gulab jamum or ras-gullas but have equal number of pieces. Find the number of pieces he should put in each box so that numbers of boxes are least.

22. Find all the zeroes of the polynomial $x^4 - 3x^3 + 6x - 4$, if two of zeroes are $\sqrt{2}$ and $-\sqrt{2}$.

23. Solve the following pair of linear equations graphically $6x - y + 4 = 0$ and $2x - 5y = 8$. Shade the region bounded by the by lines and ye axis

24 A lending library has a fixed charge for the first three days and additional charge for each day thereafter. Ram returned a book after one week and paid Rs 40, while Shyam paid Rs.60 as he returned it after eleven days. Find the fixed charge and the additional charge paid by them. Are you favouring of public libraries?

25. O is a point the interior of rectangle ABCD. Prove that $OB^2 + OD^2 = OC^2 + OA^2$

26. Two poles of height 'p' and 'q' metres are standing vertically on a level ground, 'a' metres apart Prove that the height of the point of intersection of the lines joining the top of each pole to the foot of the opposite pole is given by $\frac{pq}{p+q}$

27. Express $\sin A$, $\cos A$, $\operatorname{cosec} A$ and $\sec A$ in term of $\cot A$

28. if $\sin A + \sin^3 A = \cos^2 A$, prove that $\cos^6 A - 4\cos^4 A + 8\cos^2 A = 4$

29. Prove that $(\cot A + \sec B)^2 - (\tan B - \operatorname{cosec} A)^2 = 2(\cot A \cdot \sec B + \tan B \cdot \operatorname{cosec} A)$

30. Following frequency distribution shows the monthly expenditure incurred by some families •1 in a housing complex

Expenditure	5000- 6000	6000- 7000	7000- 8000	8000- 9000	9000- 10000	1000 -11000	11000- 12000
Number of families	4	8	9	20	13	7	1

Draw a less than type 'ogive and a 'more than type ogive. From these two cured find Median.

31. If the median of the following distribution is 46, find the missing frequencies p and q

Class interval	10 - 20	20- 30	30- 40	40-50	50 - 60	60 - 70	70- 60	Total
Frequency	12	30	P	65	q	25	18	230