

कुल छपे पृष्ठों की संख्या -02  
कुल छपे प्रश्नों की संख्या -28

नामांक ROLL NO.  
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SPB-IX-7E

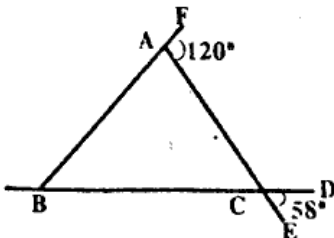
## Half-Yearly Examination 2019-20

### Class- 9 IX

Time : 3¼ Hrs.

Subject- Maths

M.M. : 70

1. Change  $2\bar{4}\bar{3}$  into ordinary number. 1
  2. Find the value of  $(125)^{\frac{1}{3}}$  1
  3. Sum of all interior angles in a triangle. 1
  4. What is SAS Rule of congruence. 1
  5. Write the formula to find the area of cyclic quadrilateral. 1
  6. What is the value of  $\frac{3\pi}{4}$  in sexagesimal system. 1
  7. Find the value of  $\sin^2 10^\circ + \cos^2 10^\circ$  1
  8. Multiply  $102 \times 107$  by Sutra Nikhilam. 2
  9. Rationalise the denominator of  $\frac{1}{\sqrt{7}+2}$ . 2
  10. If  $P(x) = x^2 + 4x - 3$  then find the value of  $P(2)$ . 2
  11. If  $3x - 2y + 7 = 0$  and  $x = 2$ , then find the value of  $y$ . 2
  12. Find the angles of  $\triangle ABC$  in the figure. 2
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13. Construct a triangle ABC in which  $AB = 4\text{cm}$ ,  $BC = 5\text{cm}$ ,  $CA = 6\text{cm}$ . 2
  14. The length of diagonals of a rhombus are 20cm. and 30cm. respectively then find its area. 2
  15. If  $\sin A = \frac{3}{5}$  then find the value of  $\cos A$ . 2
  16. Divide by Paravartya Yajayet Method :  $14885 \div 123$  3
  17. Express the  $1.\bar{2}\bar{3}\bar{5}$  in the form of  $\frac{p}{q}$  where  $p$  and  $q$  are integers and  $q \neq 0$ . 3
  18. Evaluate the following using suitable identities : 3
    - (i)  $103 \times 103$
    - (ii)  $48 \times 52$

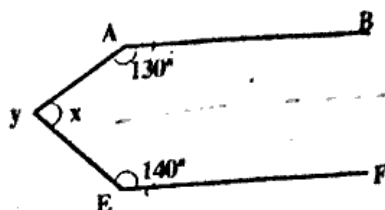
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19. Solve the following equations by the method of elimination by equating the coefficients : (2)

$$2x + y = 13$$

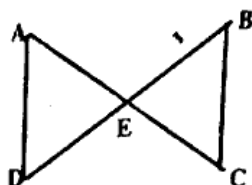
$$5x - 3y = 16$$

20. In Figure AB || EF  
find the value of  
 $\angle x$  and  $\angle y$



21. Prove that the sum of the three angles of a triangle is equal to two right angles. 3

22. In Figure  $AE = EC$   
and  $DE = BE$  then  
show that  $\triangle AED \cong \triangle CEB$



23. Construct a triangle ABC, when base  $BC = 6\text{cm}$ ,  $\angle B = 60^\circ$ , and  $AB + AC = 7\text{cm}$ . 3
24. The angles of a triangles are in ratio 2:3:4. Find the all three angles in radians. 3
25. Factorise : (Any two) 5
- (i)  $6x^2 + 5x - 6$  (ii)  $25x^2 - 36y^2$
- (iii)  $x^3 + 2x^2 - x - 2$
26. Solve the following equations by graphical method : 5
- $x + 2y = 5$ ;  $2x + y = 4$
27. Length of a rectangular field is 35m. and breadth is 20m. It is to be tiled. If the measures of a tile is 7cm.  $\times$  5 cm. then how many tiles will be required. 5

or

A water tank is 10m. long, 8m. wide and 2m. deep. Find the expenditure of repairing its four walls and floor at the rate of Rs. 15 per square metre.

28. Prove following identities :

(i)  $\sqrt{\frac{1 - \sin \theta}{1 + \sin \theta}} = \frac{1 - \sin \theta}{\cos \theta}$

(ii)  $\sqrt{\frac{\csc^2 \theta - 1}{\csc \theta}} = \cos \theta$  5

or

$$\sec^2 \theta - \tan^2 \theta = 1 + 3 \tan^2 \theta + 3 \tan^4 \theta$$

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