

## SUMMATIVE ASSESSMENT - 1, 2016 -17

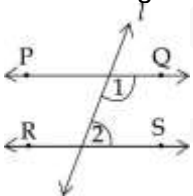
### MATHEMATICS [Code R1481EO]

#### SECTION-A

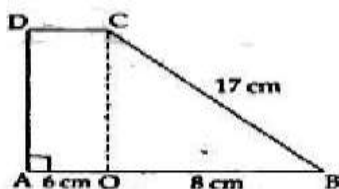
- Find the value of  $x^{a-b} \cdot x^{b-c} \cdot x^{c-a}$
- Factorize:  $125x^3 + y^3$
- Find measure of angle which is complementary to itself?
- The point P(a,b) lies in the IV Quadrant. Find which one of a and b is greater?

#### SECTION-B

- Write  $\frac{3}{13}$  in decimal form and state what kind of decimal expansion does it have?
- Two salesmen make equal sales during the month of August. In month of September, each salesman doubles his sale of the month of August. Compare their sales in September.
- If  $x + 1$  is a factor of  $ax^3 + 2x^2 - x + 3a - 7$  find value of a
- In the figure, two parallel lines PQ and RS are intersected by a transversal l. If  $\angle 1 : \angle 2 = 3 : 2$ , find the angles  $\angle 1$  and  $\angle 2$ .

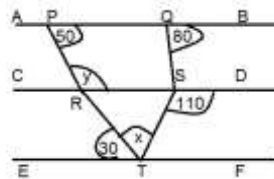


- Plot point C(-2, 4) on the graph paper and also plot reflection of C in x-axis and y-axis
- Compute the area of trapezium shown in figure

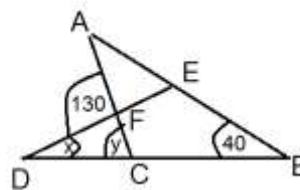


#### SECTION-C

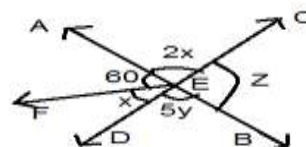
- Represent  $\sqrt{11.3}$  on number line
- If  $y - \frac{1}{y} = 9$  find the value of  $y^3 - \frac{1}{y^3}$
- If  $x^2 + \frac{1}{x^2} = 98$  find the value of  $x^3 + \frac{1}{x^3}$
- Find the value of  $(x - a)^3 + (x - b)^3 + (x - c)^3 - (x - a)(x - b)(x - c)$  where  $a + b + c = 3x$
- Prove that bisectors of the pairs of vertically opposite angles are in same straight line?
- In fig AB || CD || EF find value of  $(y - x)(x + y)$



- In fig,  $DE \perp AB$  Find the value of x and y



- If the bisector of the exterior angle C of triangle ABC is parallel to side AB, then prove that  $\triangle ABC$  is an isosceles triangle.
- In figure AB and CD intersect at point E find the value of x, y and z



20. The base of an isosceles triangle is measure 24 cm and its area is 60 cm<sup>2</sup> . Find its perimeter

### SECTION-D

21. If  $x = 4 - \sqrt{15}$  find the value of

$$\left(x + \frac{1}{x}\right)^2 - \left(x - \frac{1}{x}\right)^2$$

22. Simplify:

$$\left(\frac{x^b}{x^c}\right)^{b+c-a} \times \left(\frac{x^c}{x^a}\right)^{c+a-b} \times \left(\frac{x^a}{x^b}\right)^{a+b-c}$$

22. if  $2^x = 3^y = 6^{-z}$ , then prove that  $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 0$

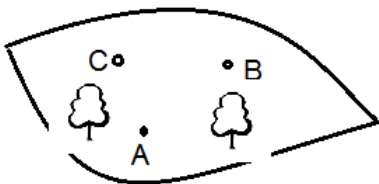
23. If  $x+4$  is a factor of polynomial  $x^3 - x^2 - 14x + 24$  . Find other factors.

24. Divide the polynomial  $2x^4 + 5x^3 - 2x^2 + 2x - 4$  by  $2x + 1$  and verify remainder using remainder theorem.

25. Factorize  $\frac{l^3}{m^3} + \frac{m^3}{n^3} + \frac{n^3}{l^3} - 3$

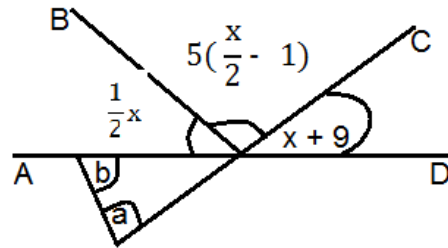
26. If  $ab + bc + ca = 0$  find value of  $\frac{1}{a^2-bc} + \frac{1}{b^2-ca} + \frac{1}{c^2-ab}$

27. Three light house tower are made at point A,B and C in the national forest to protect animals from hunters by the forest department as shown in figure. Which value in department exhibiting by making lighthouse towers? How many straight lines can be drawn from A to C. State the Euclid axiom which states the required result? Give one more Postulate.

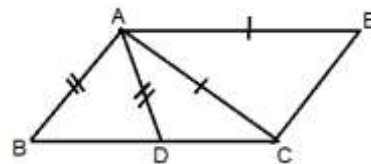


28. "A square is polygon made up of four line segments, out of which , length of tree line segment are equal to 4<sup>th</sup> one and all its angles are right angles" using Euclid's axiom/postulate justify that all angles and sides of squares are equal.

28. In figure find a + b

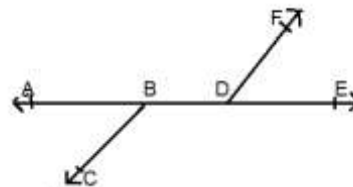


29. In the given figure , AC = AE and AB = AD and  $\angle BAD = \angle EAC$  show that BC = DE



Q30. Find the value of  $a^3 - 8b^3 - 36ab - 216$  when  $a = 2b + 6$

Q31. In fig.  $\angle ABC = 30^\circ$  ,  $\angle EDF = (40^\circ - y)$  and  $\angle ADF = (13y + 20^\circ)$  Show that BC is parallel to DE



Extra:

1. Diagonals PR and SQ of a quadrilateral PQRS meet at O. Prove that  $PQ + QR + RS + SP < 2(PR + QS)$
2. If two parallel lines are intersected by a transversal, prove that the bisectors of two pairs of interior angles encloses a rectangle.
3.  $m$  and  $n$  are plane mirrors perpendicular to each other. Prove that incident ray CA (to mirror  $n$ ) is parallel to reflected ray (to mirror  $m$ ) BD.

