

Mathematics

0580

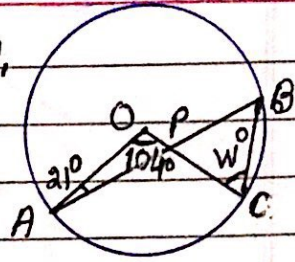
Paper - 2

Geometry

Exercise - (M-19, S-19,
M-18, S-18, W-18)

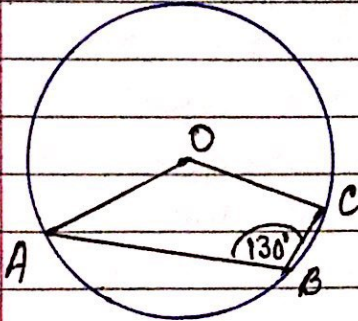
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1. A, B and C are points on the circle, centre O, AB and OC intersect at P. Find the value of x . --- [3]



[M-19/22/Q15]

2.



- A, B and C are points on the circle, centre O, Find the obtuse angle AOC. --- [2]

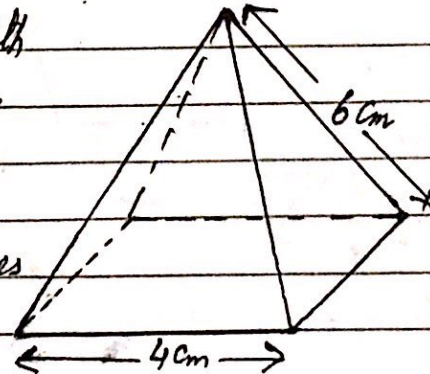
[S-19/21/Q8]

3. Complete each statement.

- (a) A quadrilateral with only one pair of parallel sides is called a --- [1]
 (b) An angle greater than 90° but less than 180° is called --- [1]

[S-19/22/Q4]

4. The diagram shows a pyramid with a square base. The triangular faces are congruent isosceles triangles.

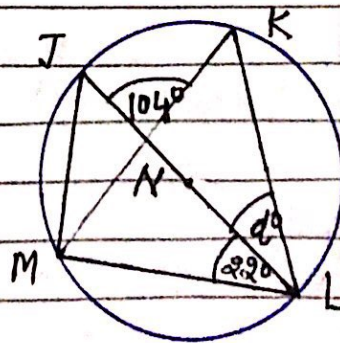


- (a) Write down the number of planes of symmetry of this pyramid. --- [1]

- (b) Using a ruler and compasses only, construct an accurate drawing of one of the triangular faces of the pyramid. --- [2]

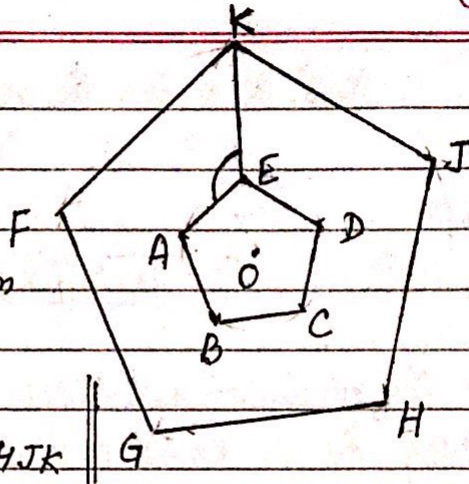
[S-19/23/Q13]

5. J, K, L and M are points on the circumference of a circle with diameter JL. JL and KM intersect at N. Angle JNK = 104° and angle MLJ = 22° . Work out the value of d . --- [4]



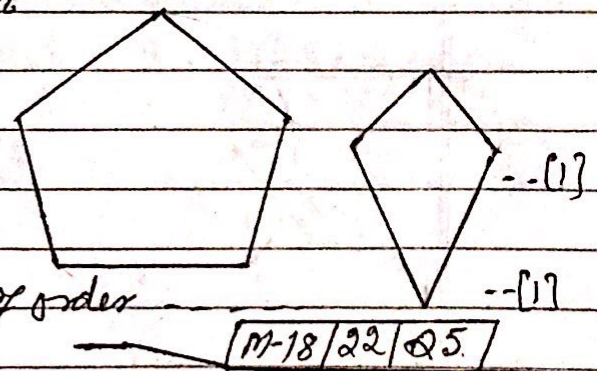
[S-19/23/Q19]

6. The diagram shows two regular pentagons. Pentagon $FGHJK$ is an enlargement of pentagon $ABCDE$, centre O .



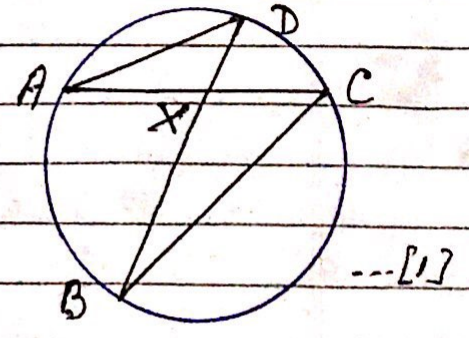
- (a) Find angle AEK --- [4]
- (b) The area of pentagon $FGHJK$ is 73.5 cm^2 . The area of pentagon $ABCDE$ is 6 cm^2 . Find the ratio, perimeter of pentagon $FGHJK$: perimeter of pentagon $ABCDE$, in its simplest form. [S-19/23/Q25] --- [2]

7. The diagram shows a regular pentagon and a kite. Complete the following statements:



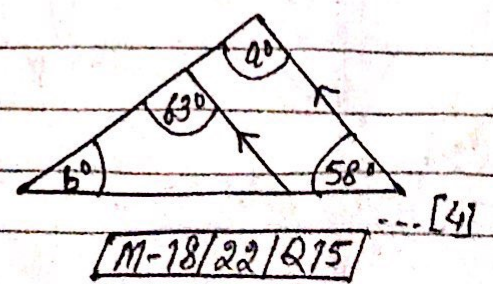
- (a) The regular pentagon has lines of symmetry. --- [1]
- (b) The kite has rotational symmetry of order . --- [1]

8. A, B, C and D are points on the circumference of the circle. AC and BD intersect at X .



- (a) Complete the statement. Triangle ADX is to triangle BCX . --- [1]
- (b) The area of triangle ADX is 36 cm^2 and the area of triangle BCX is 65.61 cm^2 . $AX = 8.6 \text{ cm}$ and $DX = 7.2 \text{ cm}$. Find BX . [M-18/22/Q14] --- [3]

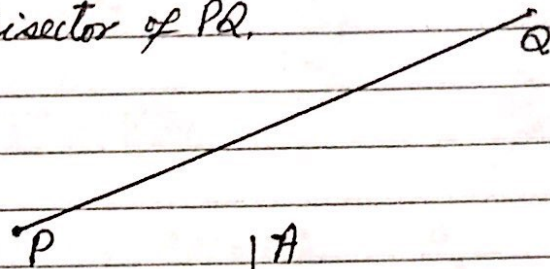
9. Complete the statements.
a = because
b = because



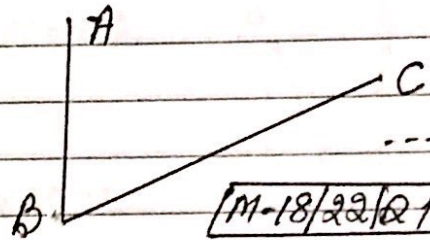
[M-18/22/Q15] --- [4]

10. In this question, use a straight edge and compasses only and show all your construction arcs.

(a) Construct the perpendicular bisector of PQ. --- [2]

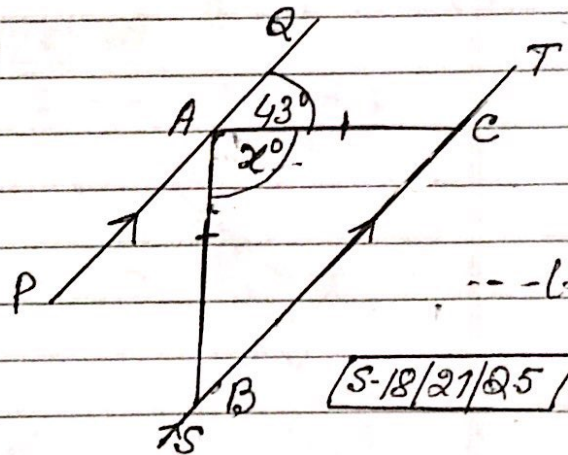


(b) Construct the bisector of angle ABC. --- [2]

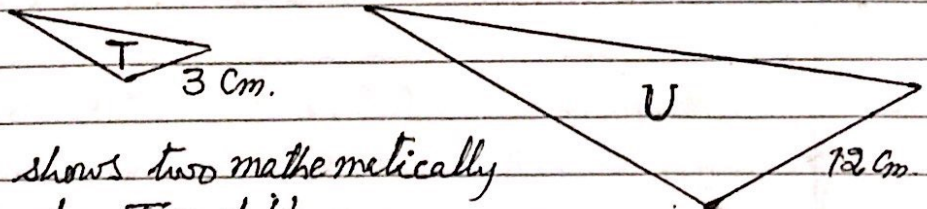


11. The diagram shows two parallel lines PAQ and SBCT.

$AB = AC$ and angle $QAC = 43^\circ$
Find the value of x .



12.



The diagram shows two mathematically similar triangles, T and U.

Two corresponding side lengths are 3 cm and 12 cm.

The area of triangle T is 5 cm^2

Find the area of triangle U.

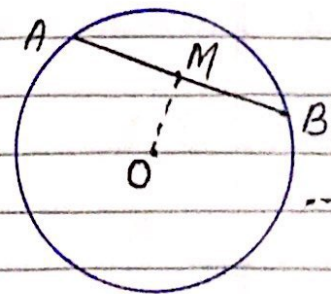
[5-18/22/Q11] --- [2]

13. The diagram shows a circle, centre O.

AB is a chord of length 12 cm.

M is the mid point of AB and $OM = 4.5 \text{ cm}$.

Calculate the radius of the circle.



[5-18/22/Q16]

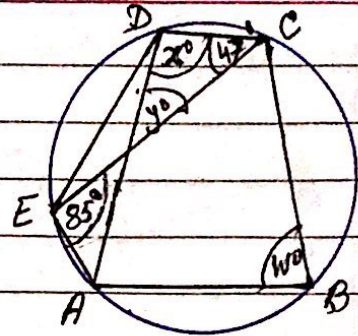
--- [3]

14. The points A, B, C, D and E lie on the circumference of the circle.

Angle $DCE = 47^\circ$ and angle $CEA = 85^\circ$

Find the value of w , x and y .

[S-18/23/Q20]

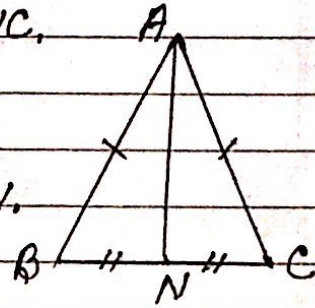


--- [3]

15. In the diagram $AB = AC$ and $BN = NC$. Complete the statement using a mathematical term.

Triangle ABN is ---- to triangle ACN .

[W-18/21/Q2]



--- [1]

16. The diagram shows an isosceles triangle ABC with $AB = AC$.

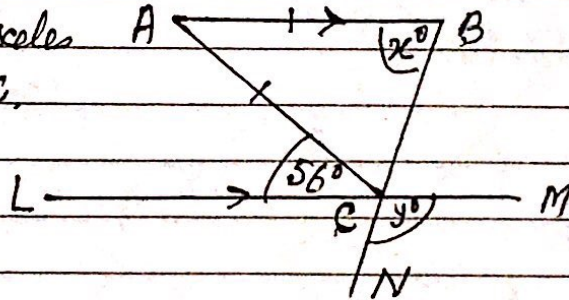
LCM and BCN are straight lines and

LCM is parallel to AB .

Angle $ACM = 56^\circ$

Find the value of x and the value of y .

[W-18/21/Q16]



--- [4]

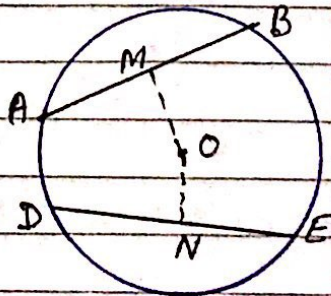
17. The diagram shows a circle, centre O .

AB and DE are chords of the circle.

M is the mid point of AB and N is the mid point of DE .

$AB = DE = 9\text{ cm}$ and $OM = 5\text{ cm}$.

Find ON .



[W-18/22/Q2]

--- [1]

18. Using a ruler and a pair of compasses only, construct a Triangle with sides 5 cm , 8 cm , 10 cm .

Leave in your construction arcs.

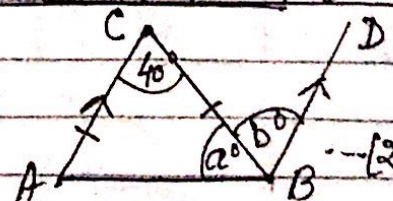
[SP-20/02/Q7] - [2]

19. Triangle ABC is isosceles.

AC is parallel to BD

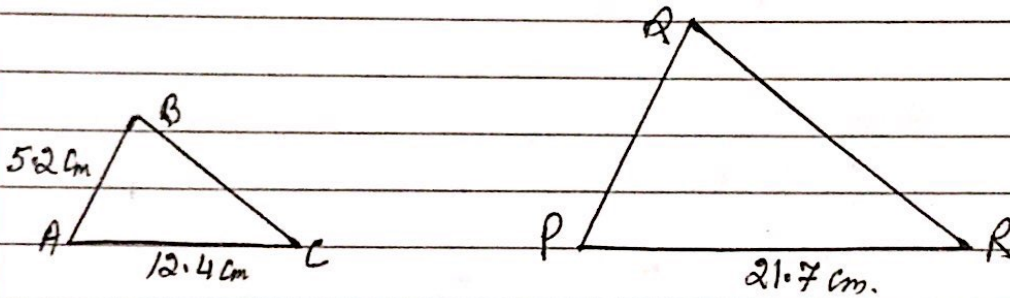
Find the value of a and b .

[SP-20/02/Q8]



--- [2]

20 Triangle ABC is similar to triangle PAR.



Find PQ.

SP-20/02/Q12

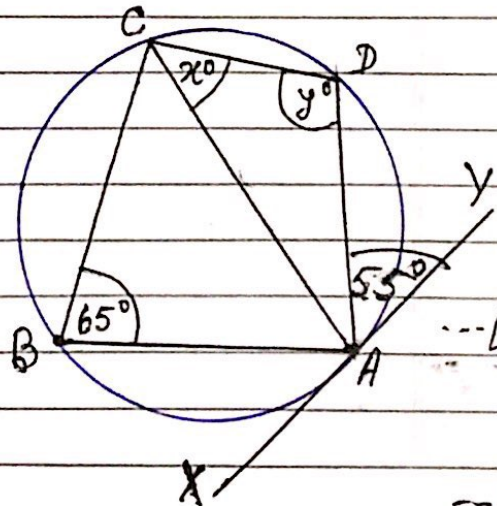
--- [2]

21. A hexagon has five angles that each measures 115° . Calculate the size of the sixth angle.

SP-20/02/Q16

--- [3]

22. A, B, C and D are points on the circumference of the circle. The line XY is a tangent to the circle at A.



(a) Find the value of x , giving a reason for your answer. ---

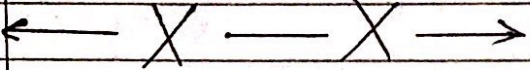
(b) Find the value of y , giving a reason for your answer.

$y = \text{---}$ because --- ,

SP-20/02/Q26

--- [2]

Answers

- | | | | |
|-----|-----------------------------------------------------------------|-----|------------------------------------------------------------------------------------|
| 1. | 73° | 20. | 9.1 |
| 2. | 100° | 21. | 145° |
| 3. | (a) Trapezium
(b) Obtuse | 22. | $x = 55^\circ$, Alternate segment,
$y = 115^\circ$, cyclic quadrilateral. |
| 4. | (a) 4
(b) Accurate drawing with correct construction arcs. | |  |
| 5. | 36° | | |
| 6. | (a) 126°
(b) 7:2 | | |
| 7. | (a) 5
(b) 1 | | |
| 8. | (a) Similar
(b) 11.61 | | |
| 9. | $a = 63$, corresponding angle,
$b = 59$ angle sum property. | | |
| 10. | (a) Correct construction
(b) Correct construction | | |
| 11. | 94° | | |
| 12. | 80 | | |
| 13. | 7.5 | | |
| 14. | $w = 95^\circ$
$x = 85^\circ$
$y = 48^\circ$ | | |
| 15. | Congruent | | |
| 16. | $x = 62$
$y = 118$ | | |
| 17. | 5 | | |
| 18. | Triangle draw accurately. | | |
| 19. | $a = 70^\circ$
$b = 40^\circ$ | | |