

REVISION TEST SERIES - 3

Class X

MATHEMATICS

Time : 1½ hrs

SET A

Marks : 40

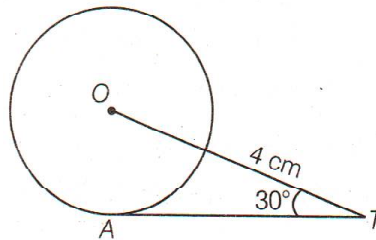
SECTION A

10 × 1 = 10

1. Two chords AB and CD of a circle intersect at E such that AE = 2.4 cm, BE = 3.2 cm and CE = 1.6 cm. The length of DE is
 a) 1.6 b) 3.2 c) 4.8 d) 6.4
2. A tangent PQ at a point P of a circle of radius 6 cm meets a line through the centre O. If CD is the tangent to the circle at a point E and PA = 14 cm then perimeter of $\triangle PCD$ is
 a) $4\sqrt{10}$ cm b) $6\sqrt{10}$ cm c) $5\sqrt{10}$ cm d) $7\sqrt{10}$ cm

3. In figure, AT is a tangent to the circle with centre O such that OT = 4 cm and $\angle OTA = 30^\circ$. Then, AT is equal to

- a) 4 cm
- b) 2 cm
- c) $2\sqrt{3}$ cm
- d) $4\sqrt{3}$ cm



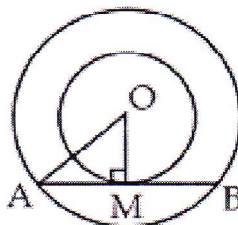
4. If radii of two concentric circles are 4 cm and 5 cm, then length of each chord of one circle which is tangent to the other circle, is
 a) 3 cm b) 6 cm c) 9 cm d) 1 cm

5. If in $\triangle ABC$ and $\triangle DEF$, $\frac{AB}{DE} = \frac{BC}{FD}$, then they will be similar, when

- a) $\angle B = \angle E$ b) $\angle A = \angle D$ c) $\angle B = \angle D$ d) $\angle A = \angle F$

6. In figure if OA = 5 cm, OM = 3 cm, the length of chord AB (in cm) is

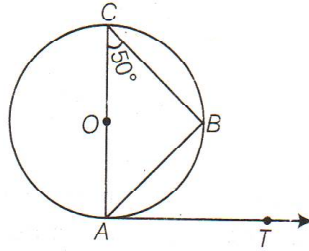
- a) 8
- b) 10
- c) 6
- d) 4



7. At one end A of a diameter AB of a circle of radius 5 cm, tangent XAY is drawn to the circle. The length of the chord CD parallel to XY and at a distance 8 cm from A, is
 a) 4 cm b) 5 cm c) 6 cm d) 8 cm

8. In figure AB is a chord of the circle and AOC is its diameter such that $\angle ACB = 50^\circ$. If AT is the tangent to the circle at the point A, then $\angle BAT$ is equal to

- a) 45°
- b) 60°
- c) 50°
- d) 55°



In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice as :

- a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
 - b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A)
 - c) Assertion (A) is true but Reason (R) is false.
 - d) Assertion (A) is false but Reason (R) is true.
 - e) Both Assertion (A) and Reason (R) are false.
9. Assertion (A) : D and E are points on the sides AB and AC of a $\triangle ABC$ such that $AB = 10.8$ cm, $AD = 6.3$ cm, $AC = 9.6$ cm and $EC = 4$ cm then DE is parallel to BC.

Reason (R) : If a line is drawn parallel to one side of a triangle then it divides the other two sides in the same ratio.

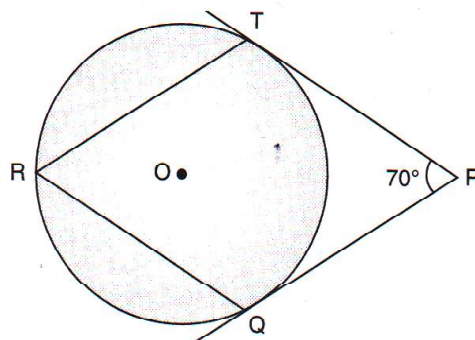
10. Assertion (A) : AB is a diameter of a circle and AC is its chord, such that $\angle BAC = 30^\circ$ and $\angle BCD = 30^\circ$.

Reason (R) : Angle between tangent and chord is equal to angle made by chord in the alternative segment.

SECTION - B

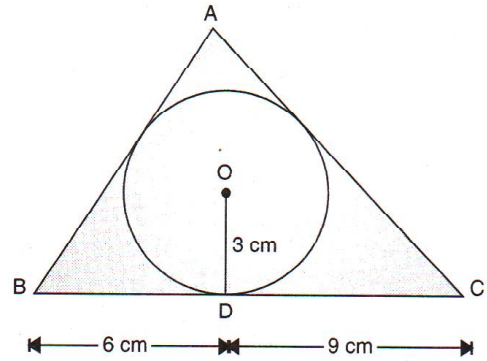
2 x 2 = 4

11. In figure, O is the centre of a circle. PT and PQ are tangents to the circle from an external point P. If $\angle TPQ = 70^\circ$, find $\angle TRQ$.

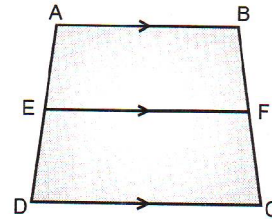


OR

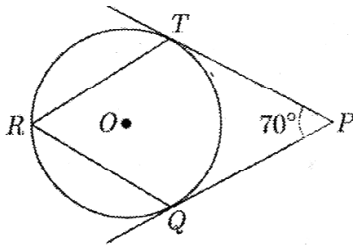
In figure, a triangle ABC is drawn to circumscribe a circle of radius 3 cm, such that the segments BD and DC are respectively of lengths 6 cm and 9 cm. If the area of triangle ABC is 54 cm^2 , then find the lengths of sides AB and AC.



12. In the given figure, if ABCD is a trapezium in which $AB \parallel CD \parallel ED$, then prove that $\frac{AE}{ED} = \frac{BF}{FC}$.



13.

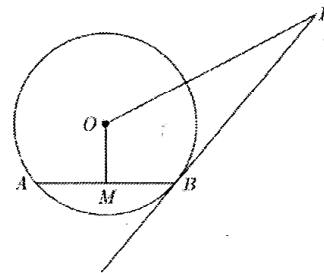


SECTION - C

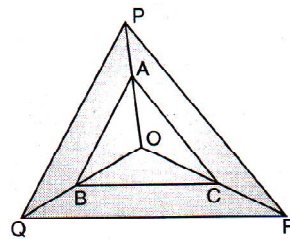
$4 \times 3 = 12$

In the given figure, BOA is a diameter of a circle and the tangent at a point P meets BA when produced at T. If $\angle PBO = 30^\circ$, what is the measure of $\angle PTA$?

14. PB is a tangent to the circle with centre O to B. AB is a chord of length 24 cm at a distance of 5 cm from the centre. If the tangent is of length 20 cm, find the length of PO.



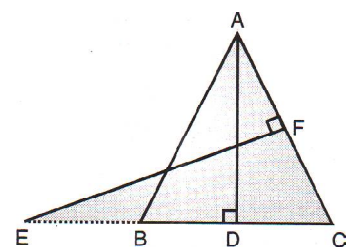
15. In the given figure A, B and C are points on OP, OQ and OR respectively such that $AB \parallel PQ$ and $AC \parallel PR$. Prove that $BC \parallel QR$.



16. ABCD is a trapezium in which $AB \parallel DC$ and its diagonals intersect each other at the point O. Show that $\frac{AO}{BO} = \frac{CO}{DO}$.

OR

In the given figure, $AB = AC$. E is a point on CB produced. If AD is perpendicular to BC and EF perpendicular to AC. Prove that $\triangle ABD$ is similar to $\triangle CEF$.

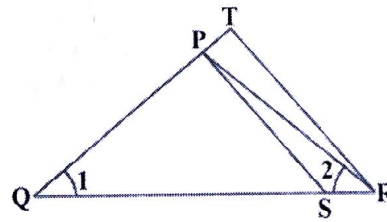


SECTION - C

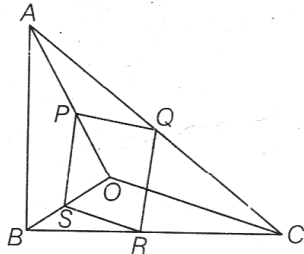
2 × 5 = 10

17. In figure below, $\frac{QR}{QT} = \frac{QS}{PR}$ and $\angle 1 = \angle 2$.

Show that $\Delta PQS \sim \Delta TQR$.



18.

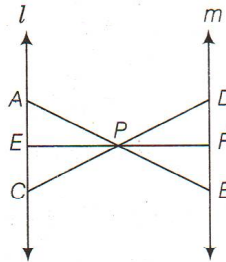


In the given figure, if PQRS is a parallelogram and $AB \parallel PS$, then prove that $OC \parallel SR$.

OR

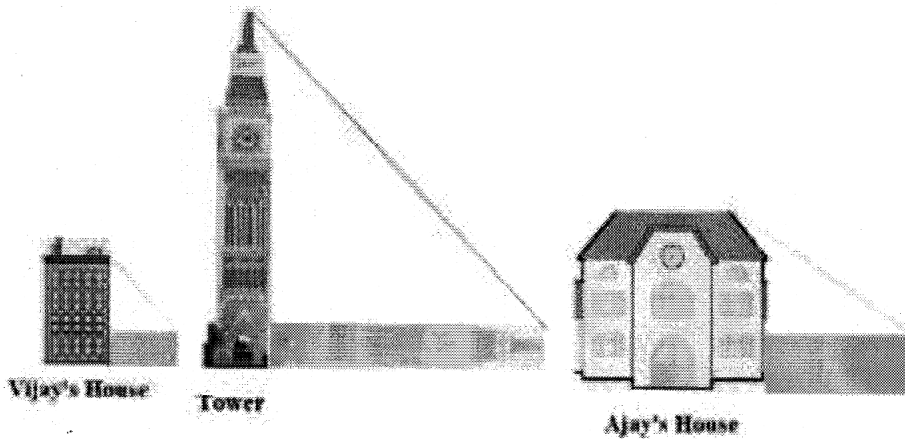
In given figure, $l \parallel m$ and line segments AB, CD and

EF are concurrent at point P. Prove that $\frac{AE}{BF} = \frac{AC}{BD} = \frac{CE}{FD}$.



SECTION - E

19. Vijay is trying to find the average height of a tower near his house. He is using the properties of similar triangles. The height of Vijay's house is 20 m when Vijay's house casts a shadow 10 m long on the ground. At the same time, the tower casts a shadow 50 m long on the ground and the house of Ajay casts 20 m shadow on the ground.



Based on the above information, answer the following questions.

i) What is the height of the tower?

2

OR

What will be the length of the shadow of the tower when Vijay's house casts a shadow of 12 m?

ii) When the tower casts a shadow of 40m, same time what will be the length of the shadow of Ajay's house?

1

iii) When the tower casts a shadow of 40 m, same time what will be the length of the shadow of Vijay's house?

1

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Class X

MATHEMATICS

Time : 1½ hrs

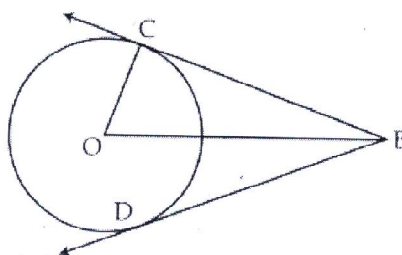
SET B

Marks : 40

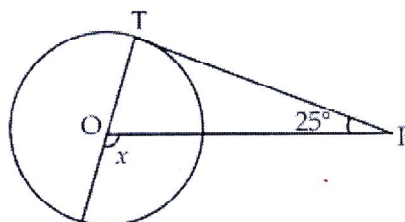
SECTION A

10 × 1 = 10

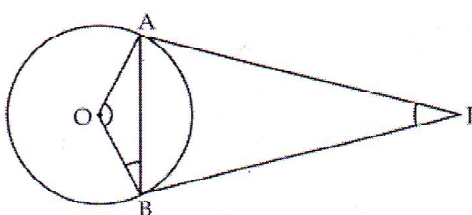
1. If in two $\triangle ABC$ and $\triangle PQR$, $\frac{AB}{QR} = \frac{BC}{PR} = \frac{CA}{PQ}$, then
 - a) $\triangle PQR \sim \triangle CAB$
 - b) $\triangle PQR \sim \triangle ABC$
 - c) $\triangle CBA \sim \triangle PQR$
 - d) $\triangle BCA \sim \triangle PQR$
2. If $\triangle ABC \sim \triangle EDF$ and $\triangle ABC$ is not similar to $\triangle DEF$, then which of the following is not true?
 - a) $BC \cdot EF = AC \cdot FD$
 - b) $AB \cdot EF = AC \cdot DE$
 - c) $BC \cdot DE = AB \cdot EF$
 - d) $BC \cdot DE = AB \cdot FD$
3. In $\triangle ABC$ and $\triangle DEF$, $\angle B = \angle E$, $\angle F = \angle C$ and $AB = 3DE$. Then, the two triangles are
 - a) congruent but not similar
 - b) similar but not congruent
 - c) neither congruent nor similar
 - d) congruent as well as similar
4. In figure if $OC = 9$ cm, and $OB = 15$ cm, then find $BC + BD$
 - a) 18 cm
 - b) 12 cm
 - c) 24 cm
 - d) 36 cm



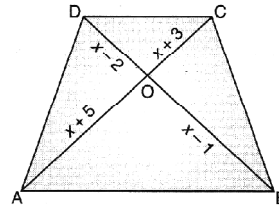
5. In figure PT is a tangent to a circle with centre O and $\angle TPO = 25^\circ$, then the measure of x is
 - a) 120°
 - b) 125°
 - c) 110°
 - d) 115°



6. Two tangents are drawn from an external point P (as given in figure) such that $\angle OBA = 10^\circ$. Then $\angle BPA$ is
 - a) 10°
 - b) 20°
 - c) 30°
 - d) 40°



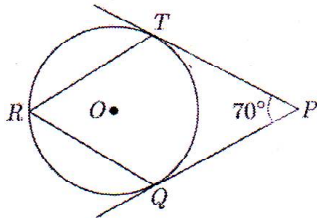
12. In the given figure, if $AB \parallel DC$, find the value of x .



SECTION - C

4 × 3 = 12

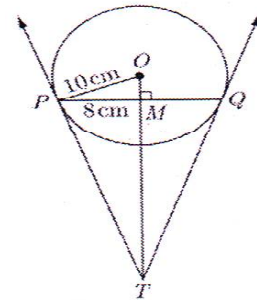
13.



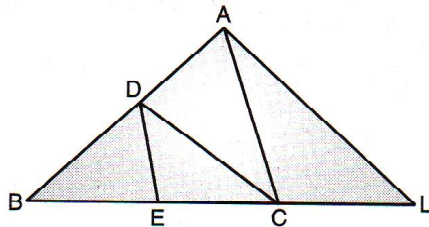
In figure, O is the centre of a circle. PT and PQ are tangents to the circle from an external point P. If $\angle TPQ = 70^\circ$, find $\angle TRQ$.

14. In figure, PQ, is a chord of length 16 cm, of a circle of radius 10 cm, the tangents at P and Q intersect at a point T.

Find the length of TP.

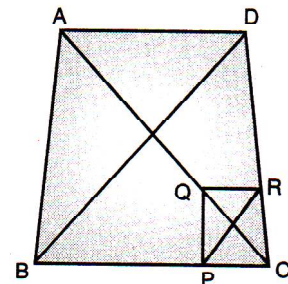


15.



In the given figure $CD \parallel LA$ and $DE \parallel AC$. Find the length of CL, if $BE = 4$ cm and $EC = 2$ cm.

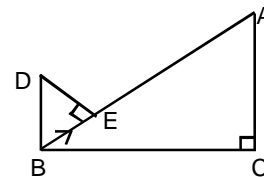
16. In the given figure, two triangles ABC and DBC lie on the same side of BC such that $PQ \parallel BA$ and $PR \parallel BD$. Prove that $QR \parallel AD$.



OR

In the given figure, $DB \perp BC$, $DE \perp AB$ and $AC \perp BC$.

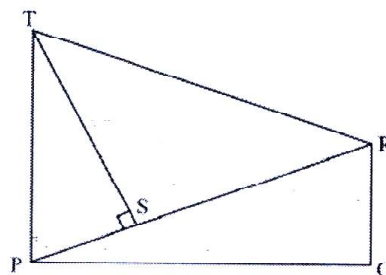
Prove that $\frac{BE}{DE} = \frac{AC}{BC}$.



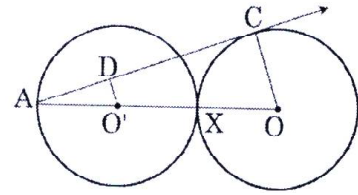
SECTION - C

2 × 5 = 10

17. In the given figure, RQ and TP are perpendicular to PQ, also TS perpendicular to PR. Prove that $ST \cdot RQ = PS \cdot PQ$.

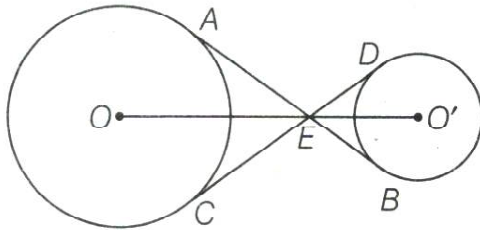


18. In figure, two equal circles with centres O and O' , touch each other at X . OO' produced meet the circle with centre O' at A . Find the value of $\frac{DO'}{CO'}$.



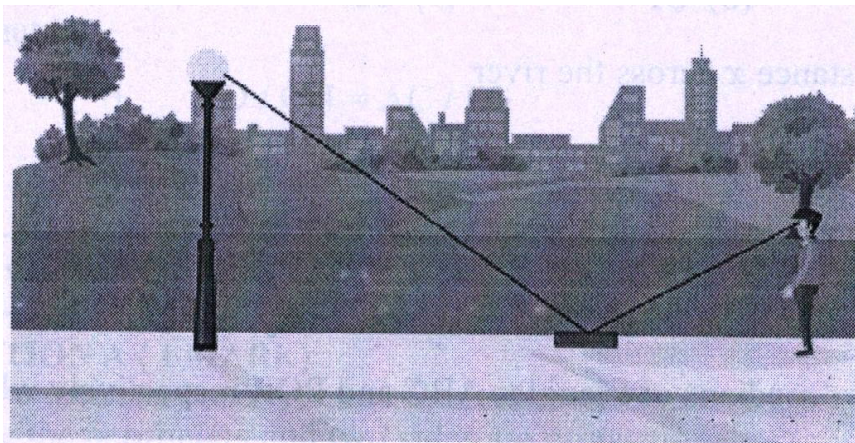
OR

In a figure the common tangents, AB and CD to two circles with centres O and O' intersect at E . Prove that the points O , E and O' are collinear.



SECTION - E

19. Ramesh places a mirror on level ground to determine the height of a pole (with traffic light fixed on it). He stands at a certain distance so that he can see the top of the pole reflected from the mirror. Ramesh's eye level is 1.5 m above the ground. The distance of Ramesh and the pole from the mirror are 1.8 m and 6m respectively.



- i) Which criterion of similarity is applicable to similar triangles? 1
 ii) What is the height of the pole? 2

OR

Now Ramesh moves behind such that distance between pole and Ramesh is 13 meters. He places mirror between him and pole to see the reflection of light in right position. What is the distance between mirror and Ramesh?

- iii) What is the distance between mirror and pole? 1