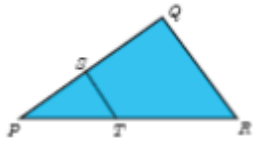
RK TUITION CENTRE - KUMBAKONAM

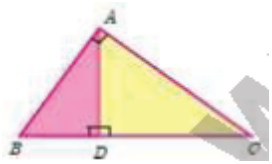
10TH MATHEMATICS
GEOMETRY

20 X 1 = 20

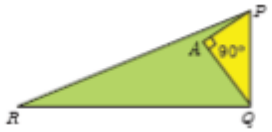
1. If in triangles ABC and EDF, $\frac{AB}{DE} = \frac{BC}{FD}$ then they will be similar, when
   (a) $\angle B = \angle E$ (b) $\angle A = \angle D$ (c) $\angle B = \angle D$ (d) $\angle A = \angle F$
2. In $\angle LMN, \angle L = 60^\circ, \angle M = 50^\circ$, If $\Delta LMN \sim \Delta PQR$ then the value of $\angle R$ is
   (a) 40° (b) 70° (c) 30° (d) 110°
3. If ΔABC is an isosceles triangle with $\angle C = 90^\circ$ and $AC = 5cm$, then AB is
   (a) $2.5cm$ (b) $5\ cm$ (c) $10cm$ (d) $5\sqrt{2}cm$
4. In a given figure $ST||QR, PS = 2cm$ and $SQ = 3cm$.
   Then the ratio of the area of ΔPQR to the area ΔPST is



   (a) 25: 4 (b) 25: 7 (c) 25: 11 (d) 25: 13
5. The perimeters of two similar triangles ΔABC and ΔPQR are $36cm$ and $24cm$ respectively. If $PQ = 10cm$, then the length of AB is
   (a) $6\frac{2}{3}$ (b) $\frac{10\sqrt{6}}{3}cm$ (c) $60\frac{2}{3}cm$ (d) $15cm$
6. If $\Delta ABC, DE||BC, AB = 3.6cm, AC = 24cm$ and $AD = 2.1cm$ then the length of AE is
   (a) $1.4cm$ (b) $1.8cm$ (c) $1.2cm$ (d) $1.05cm$
7. In a $\Delta ABC, AD$ is the bisector $\angle BAC$. If $AB = 5cm$ and $DC = 8cm$. The length of the side AC is
   (a) $6cm$ (b) $4cm$ (c) $3cm$ (d) $8cm$
8. In the adjacent figure $\angle BAC = 90^\circ$ and $AD \perp BC$ then



   (a) $BC - CD = BC^2$ (b) $AB.AC = BC^2$ (c) $BD.CD = AD^2$ (d) $AB - AC = AD^3$
9. Two poles of heights $6m$ and $11m$ stand vertically on a plane ground. If the distance between their feet is $12m$, what is the distance between their tops?
   (a) $13m$ (b) $14m$ (c) $15m$ (d) $12.8m$
10. In the given figure $PR = 26cm, QR = 24cm, \angle PAQ = 90^\circ, PA == 6cm$ and $QA = 8cm$ Find $\angle PQR$



   (a) 80° (b) 85° (c) 75° (d) 90°
11. A tangent is perpendicular to the radius at the
   (a) Centre (b) point of contact (c) infinity (d) chord
12. How many tangents can be drawn to the circle from an exterior point?
   (a) One (b) two (c) infinite (d) zero

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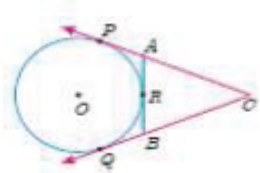
13. The two tangents from an external points P to a circle with centre at O are PA and PB.If $\angle APB = 70^\circ$ then the value of $\angle AOB$ is

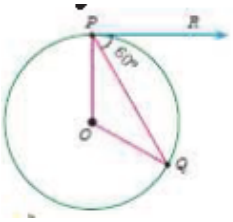
(a) 100° (b) 110° (c) 120° (d) 130°

14. In figure CP and CQ are tangents to a circle with centre at O. ARB is another tangent touching the circle at R. If $CP = 11$cm and $BC = 7cm$, then the length of BR is



(a) $6\ cm$ (b) $5cm$ (c) $8cm$ (d) $4cm$

15. In figure if PR is tangent to the circle at P and O is the centre of the circle, then $\angle PQR$ is



(a) 120° (b) 100° (c) 110° (d) 90°

16. The perimeter of a right triangle is $36cm$. Its hypotenuse is $15cm$, then the area of the triangle is

(a) $108cm^2$ (b) $54cm^2$ (c) $27cm^2$ (d) $216cm^2$

17. Sides of two similar triangle are in the ratio $4:9$. Areas of these triangles are in the ratio

(a) $2:3$ (b) $4:9$ (c) $81:16$ (d) $61:81$

18. The areas of two similar triangles are respectively $9cm^2$ and $16cm^2$. The ratio of their corresponding sides is

(a) $3:4$ (b) $4:3$ (c) $2:3$ (d) $4:5$

19. ΔABC is such that $AB = 3cm, BC = 2cm$ and $CA = 2.5cm$. if $\Delta DEF - \Delta ABC$ and $EF = 4cm$ then perimeter of ΔDEF is

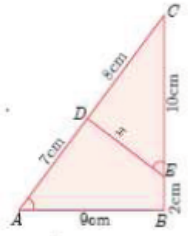
(a) $7.5cm$ (b) $15cm$ (c) $22.5cm$ (d) $30cm$

20. A man goes $24m$ due west and then $7m$ due north. How are is he from the starting point?

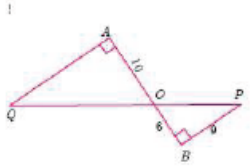
(a) $31m$ (b) $17m$ (c) $25m$ (d) $26m$

11 X 2 = 22

21. $\angle A = \angle CED$ prove that $\Delta CAB \sim \Delta CED$ also find the value of x.



22. QA and PB are perpendiculars to AB. If $AO = 10cm, BO = 6cm$ and $PB = 9cm$. Find AQ.



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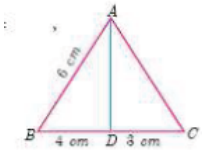
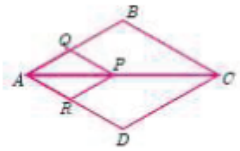
23. A vertical stick of length $6m$ casts a shadow $400cm$ long on the ground and at the same time a tower casts a shadow $28m$ long. Using similarity, find the height of the tower.
24. In the figure, AD is the bisector of $\angle A$. If $BD = 4cm, DC = 3cm$ and $AB = 6cm$, find AC.

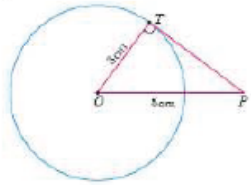


25. In fig. if $PQ||BC$ and $PR||CD$ prove that

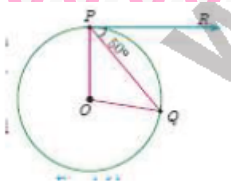


$\frac{AB}{AD} = \frac{AQ}{AB}$

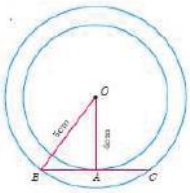
26. A man goes $18m$ due east and then $24m$ due north. Find the distance of his current position from the starting point?
27. Find the length of the tangent drawn from a point whose distance from the centre of a circle is $5cm$ and radius of the circle is $3cm$.



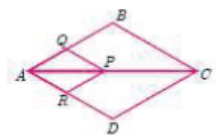
28. In figure, O is the centre of a circle. PQ is a chord and the tangent PR at P makes an angle of 50° with PQ. Find $\angle POQ$,



29. If radii of two concentric circles are $4cm$ and $5cm$ then find the length of the chord of one circle which is a tangent to the other circle.



30. The length of the tangent to a circle from a point P, which is $25cm$ away from the centre is $24cm$. What is the radius of the circle?
31. In fig. if $PQ||BC$ and $PR||CD$ prove that



$\frac{QB}{AQ} = \frac{DR}{AR}$

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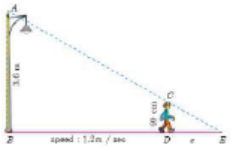
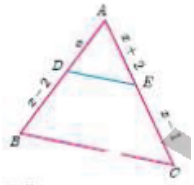
10 X 5 = 50

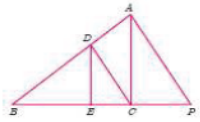
32. A boy of height $90cm$ is walking away from the base of a lamp post at a speed of $1.2m/sec$.If the lamppost is $3.6m$ above the ground, find the length of his shadow cast after 4 seconds.



33. A girl looks the reflection of the top of the lamp post on the mirror which is $66m$ away from the foot of the lamppost. The girl whose height is $12.5m$ is standing $2.5m$ away from the mirror. Assuming the mirror is placed on the ground facing the sky and the girl, mirror and the lamppost are in a same line, find the height of the lamp post.
34. In $\Delta ADC =$, if $DE||BC, AD = x, DB = x - 2$ and $EC = x - 1$ then find the lengths of the sides AB and AC.

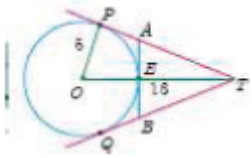


35. In the figure $DE||AC$ and $DC||AP$, Prove that $\frac{BE}{CE} = \frac{BC}{CP}$



36. To get from point A to point B you must avoid walking through a pond. You must walk $34m$ south and $41m$ east. To the nearest meter, how many meters would be saved if it were possible to make a way through the pond?

37. In figure, O is the centre of the circle with radius $5cm$. T is a point such that $OT = 13cm$ and OT intersects the circle E, if AB is the tangent to the circle at E, find the length of AB.



38. Show that the angle bisectors of a triangle are concurrent.
39. Basic proportionality Theorem (BPT) or Thales theorem?
40. Angle Bisector Theorem?
41. State and prove Pythagoras theorem?

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