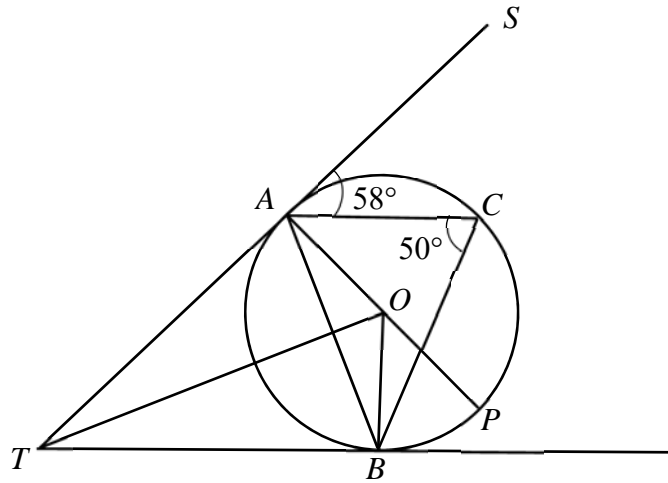


- 5 In the diagram, O is the centre of the circle. SAT and BT are tangents to the circle. AP is the diameter. $\angle SAC = 58^\circ$ and $\angle ACB = 50^\circ$.

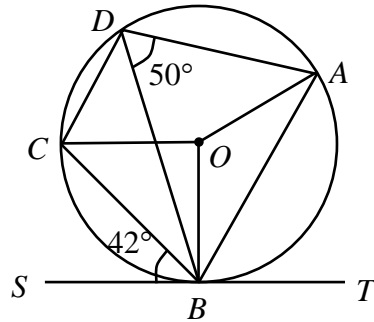


- (a) Show that triangle AOT is congruent to triangle BOT . [2]
- (b) Find
- (i) $\angle CAO$, [1]
- (ii) $\angle AOB$, [1]
- (iii) $\angle BAO$, [1]
- (iv) $\angle ATB$, [1]
- (v) $\angle OBC$, [2]
- (vi) $\angle OPB$. [1]

Show your working and give reasons.

- (c) A point D is such that $ACBD$ is a quadrilateral where $\angle ADB = 130^\circ$. Determine whether D lies on the circumference of the circle. [1]

- 10** A, B, C and D are four points on the circumference of a circle with centre O . ST is a tangent to the circle at B . It is given that angle $ADB = 50^\circ$ and angle $CBS = 42^\circ$. Calculate, showing your working clearly,



- (a) angle COB ,

Answer Angle $COB = \dots\dots\dots$ [2]

- (b) angle CDB ,

Answer Angle $CDB = \dots\dots\dots$ [1]

- (c) angle AOC .

Answer Angle $AOC = \dots\dots\dots$ [2]

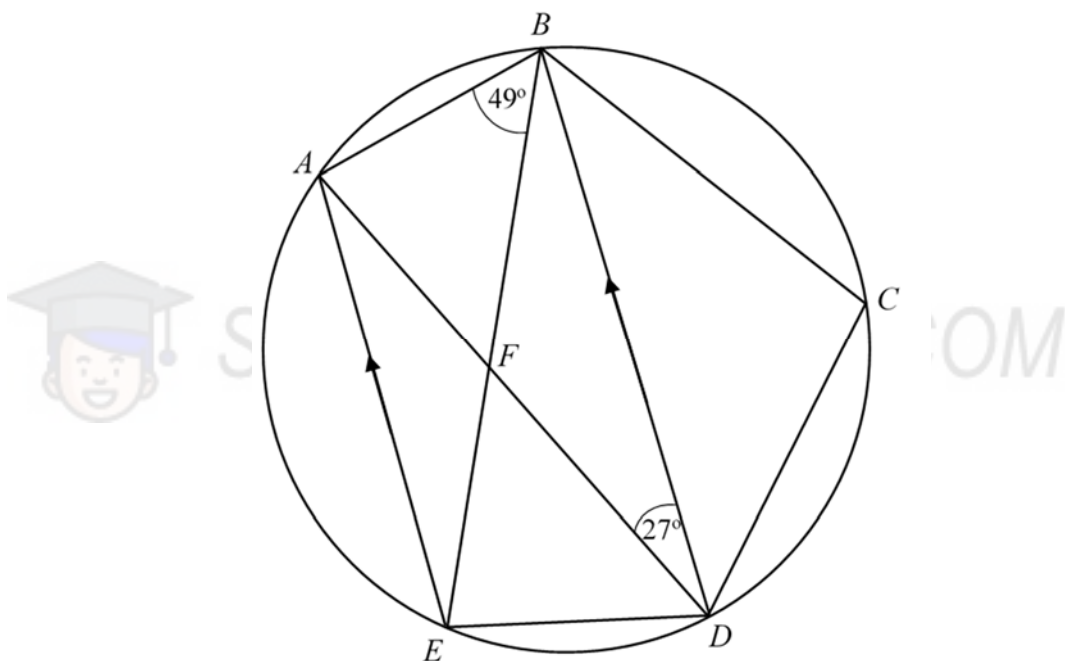
- 21 (c)** Explain how you can tell from the graph, the number of solutions to the equation $\frac{a}{x^2} = k$ for positive values of k .

Answer

.....

..... [2]

- 22** The diagram shows a circle that passes through A, B, C, D and E .
 The lines AE and BD are parallel.
 Angle $ADB = 27^\circ$ and angle $ABE = 49^\circ$.



- (a)** Find the angle AFE .

Show your working and give reasons.

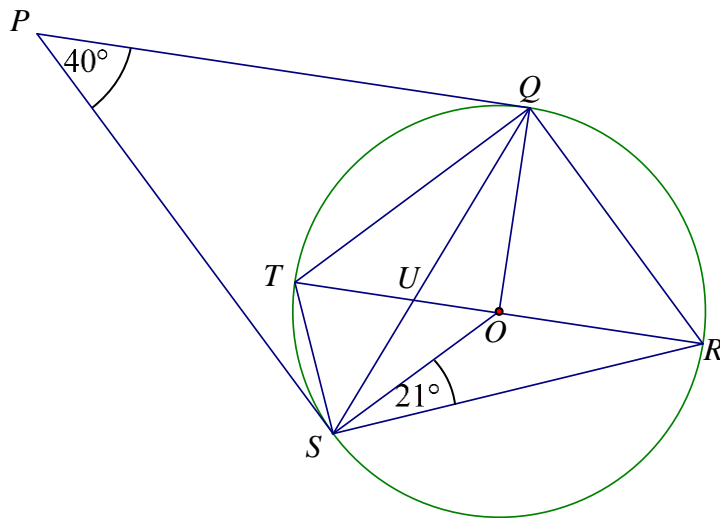
Answer $^\circ$ [3]

- 4 (a) The cash price of a new washer-dryer is \$2595. It is also available on hire purchase with a deposit of one quarter of the cash price followed by monthly instalments of \$60 for three years.

Pavithra buys this washer-dryer on hire purchase.

- (i) Calculate the rate of simple interest charged per annum, correct to two decimal places. [4]
- (ii) Find the extra cost of buying the washer-dryer on hire purchase as a percentage of the cash price. [2]
- (b) A sum of money grows to \$5800.15 in 3 years at a compound interest of 2.75% per annum. Find the sum of money if the interest is compounded quarterly. [2]

5

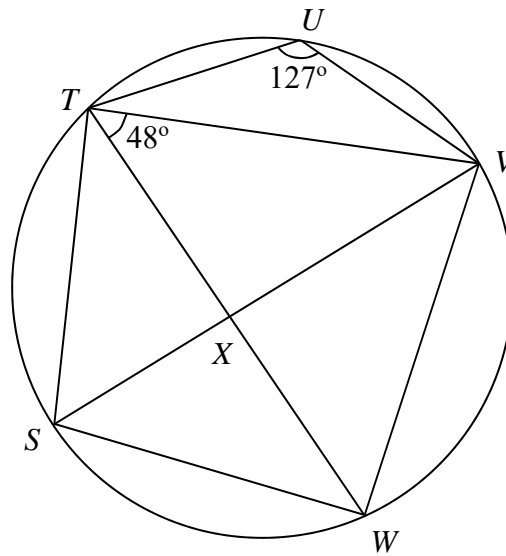


The diagram shows a circle $QRST$, centre O . U is the point of intersection of QS and diameter RT . PQ and PS are tangents to the circle such that angle $QPS = 40^\circ$. Angle $OSR = 21^\circ$.

Find, with clearly stated reasons,

- (a) obtuse angle QOS , [2]
- (b) angle QTS , [2]
- (c) angle OSU , [1]
- (d) angle PQT . [3]

- 19 S, T, U, V and W are points on a circle. SV is the diameter and it intersects TW at X . Angle $VTW = 48^\circ$ and angle $TUV = 127^\circ$.



- (a) Find, stating your reasons clearly,

- (i) angle VSU ,

Answer $^\circ$ [1]

- (ii) angle TVS ,

Answer $^\circ$ [2]

- (iii) angle WXV .

Answer $^\circ$ [1]

- (b) Is X the centre of the circle? Explain your answer, stating your reasons clearly.

Answer

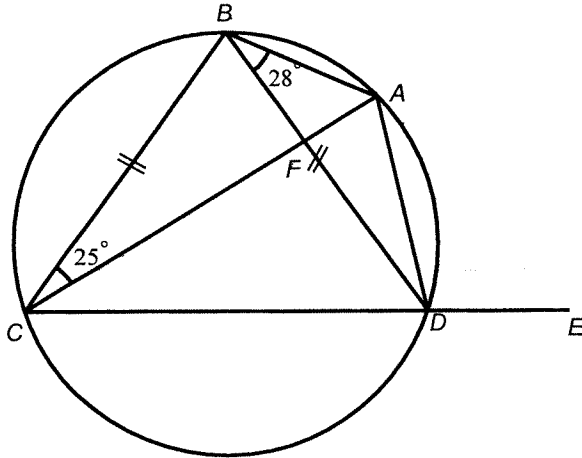
.....

.....

.....

..... [1]

- 13 The diagram shows a circle $ABCD$ with $BC = BD$. CDE is a straight line. Given that angle $ABD = 28^\circ$ and angle $ACB = 25^\circ$,



- (a) explain why is angle $ACD = 28^\circ$.

Answer

.....

[1]

- (b) Hence, find angle BAD , giving reasons for your answer.

Answer..... $^\circ$ [2]

