ANSWERS

Circle Theorems – Past Paper Questions

14. *(a)*

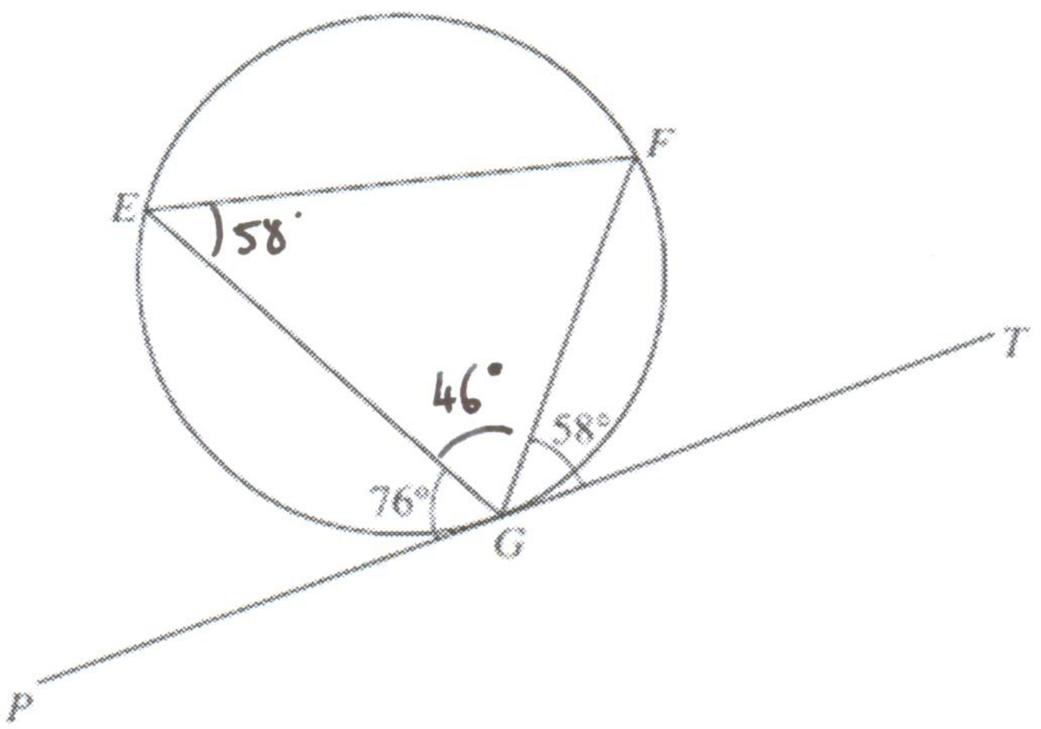

Diagram not drawn to scale.

Three points E, F and G lie on the circumference of the circle.

The tangent PT touches the circle at G.

Given that $E\hat{G}P = 76°$ and $F\hat{G}T = 58°$, find the size of $F\hat{E}G$, giving a reason for your answer.

58° (1) Alterate segment (1)

[2]

(b) Given that y varies inversely as x, and $y = 0{\cdot}3$ when $x = 10$, find the relationship between x and y.

$y \propto \frac{1}{x}$ so $y = \frac{k}{x}$ (1)

$0{\cdot}3 = \frac{k}{10}$ so $k = 3$ (1)

[3]

$\therefore \quad y = \frac{3}{x}$ (1)

14.

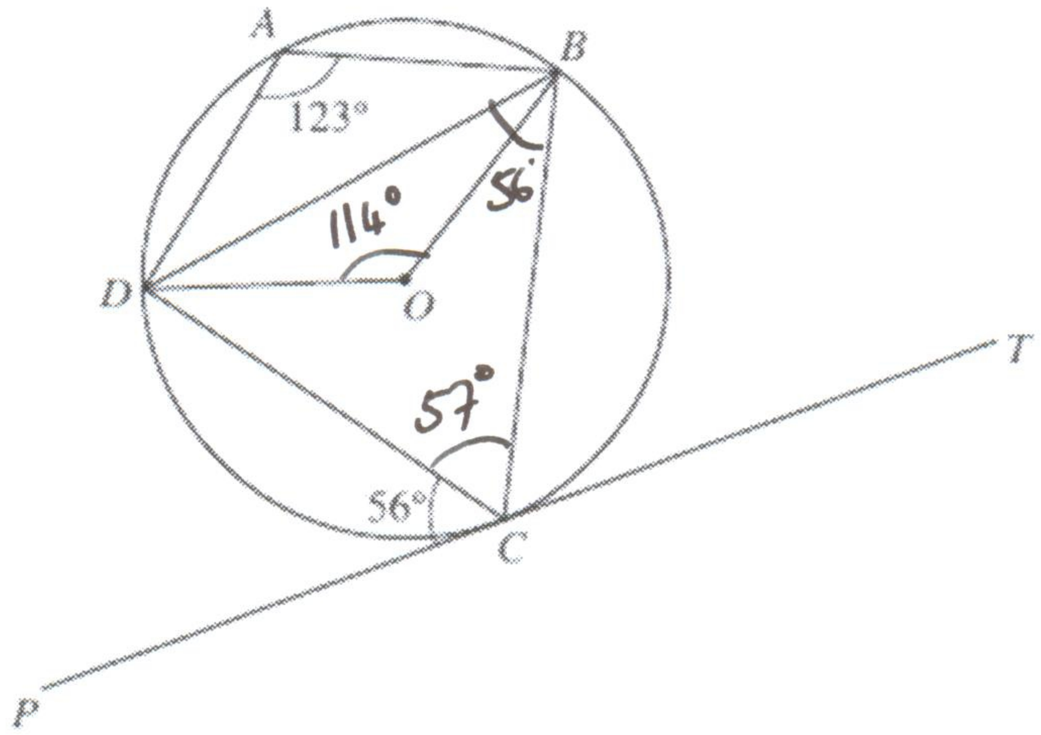

Diagram not drawn to scale.

Four points A, B, C and D lie on the circumference of the circle centre O.

The tangent TP touches the circle at C, $D\hat{C}P = 56°$ and $D\hat{A}B = 123°$.

Find **each** of the following angles.

(a) $D\hat{B}C$

56° (1) - Alternate segment.

[1]

(b) $B\hat{C}D$

180° - 123° = 57° (1) Cyclic Quadrilateral. (1)

[1]

(c) $D\hat{O}B$

114° (1) as double $B\hat{C}D$

[1]

15. The three points A, B and C lie on the circumference of a circle centre O.
The tangent RBT touches the circle at B, $A\hat{B}R = 44°$ and $A\hat{C}O = 21°$.

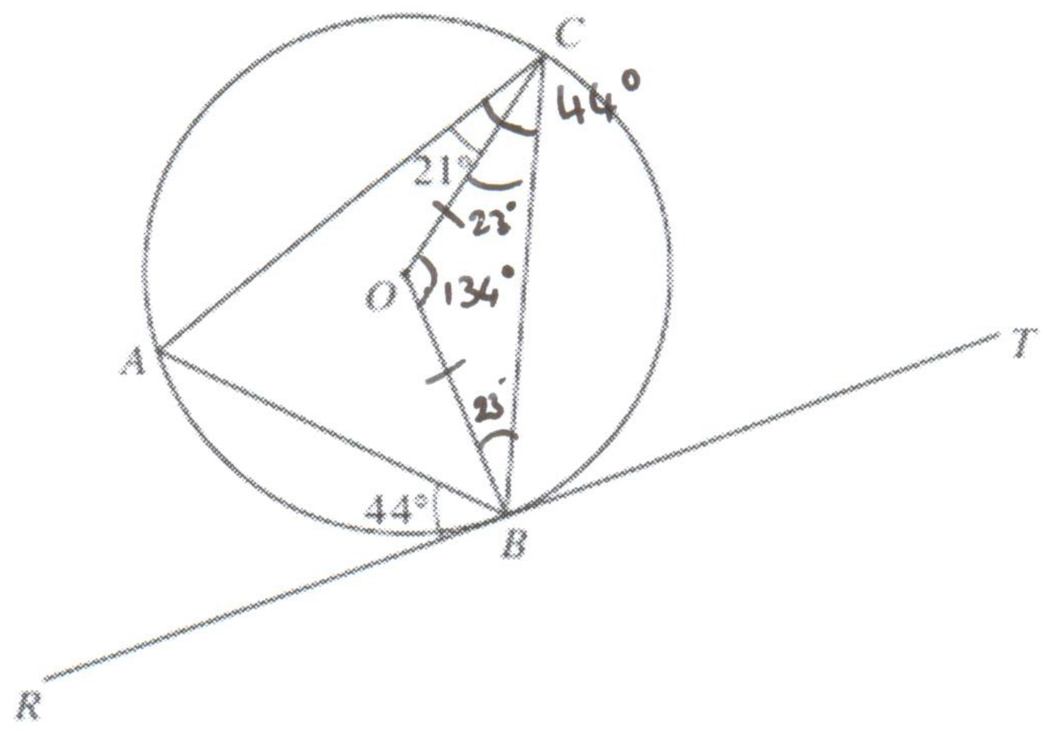

Diagram not drawn to scale.

Find **each** of the following angles, giving reasons for your answers.

(a) $O\hat{C}B$

$A\hat{C}B = 44°$ (1) by ALTERNATE SEGMENT

So $O\hat{C}B = 44° - 21°$

$= 23°$ (1)

[2]

(b) $B\hat{A}C$

$B\hat{A}C$ is half of $C\hat{O}B$

So using ISOSCELES TRIANGLE BOC we get $C\hat{O}B = 134°$ (1) So

[2]

$B\hat{A}C = 67°$. (1)