Tangents to a circle

1

a $OB < OC$

b Point B

c The angle is a right angle.

d $\angle OBA$ is a right angle

2

a No solution provided.

b They are collinear.

3

a $x = 90^\circ$ (A tangent to a circle is perpendicular to the radius drawn to the point of contact)

b $x = 63^\circ$ (The interior angle sum of a triangle is 180°)

c $x = 40$ (Two straight lines are tangents issued from the same external point)

d $x = 59^\circ, y = 59^\circ$ (The angle between a tangent and a chord drawn to the point of contact is equal to the angle in the alternate segment)

e $x = 24$ (The interior angle sum of a triangle is 180°)

f $x = 131^\circ$ (The interior angle sum of a quadrilateral is 360°)

4 136 units

5 $\angle SUV = 48^\circ$

6 $OK = 21$

7

a $y = 53^\circ$

b $x = 37^\circ$

8

a $x = 55^\circ$

b $x = 63^\circ$

c $a = 34^\circ$

d $k = 63^\circ$

e $n = 42^\circ$

f $y = 72.5^\circ$

9

a $x = 8$

b $y = 65^\circ$

10 $\angle YZT = 57^\circ$

11 $\angle APB = 44^\circ$

12 $b = 72^\circ$

13 $p = 34 \text{ cm}$

14 $f = 68^\circ$

Proofs

15 No solution provided.

16 No solution provided.

17 No solution provided.