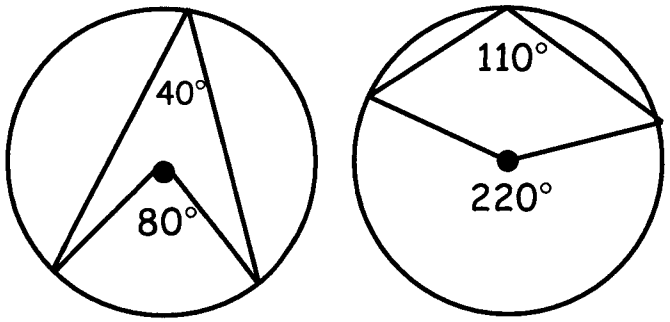
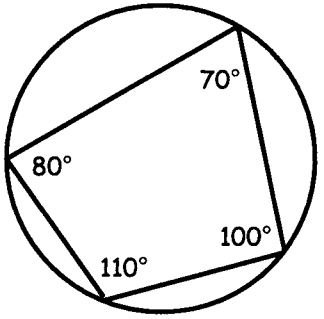
ANGLE PROPERTIES of CIRCLES

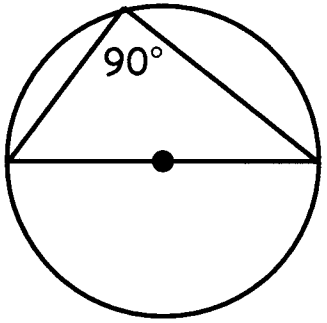
Angle at the centre is twice the angle at the circumference



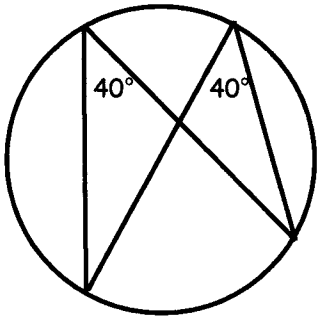
Opposite angles of a cyclic quadrilateral add to 180



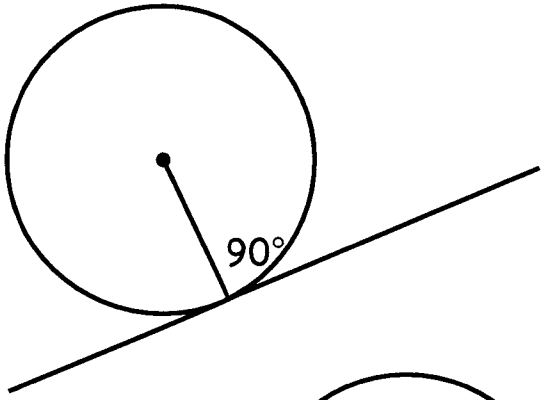
The angle in a semicircle is a right angle



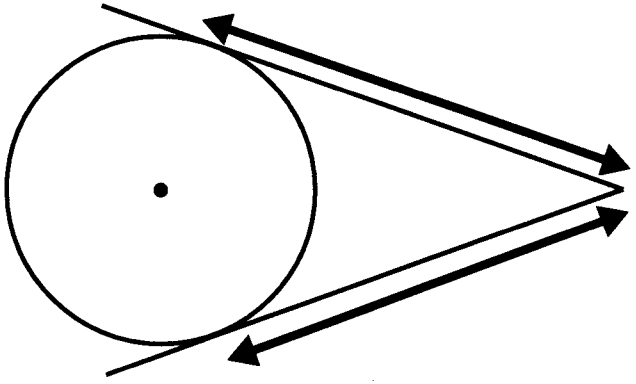
Angles drawn in the same segment are equal



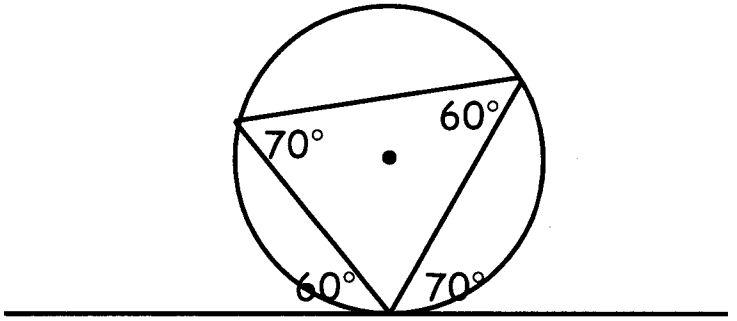
The tangent at any point on a circle is perpendicular to the radius at that point

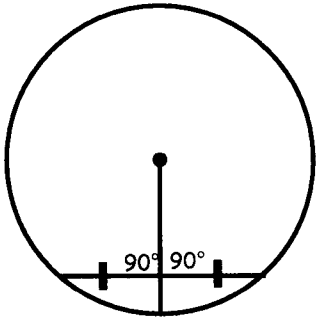


Tangents from an external point are equal in length

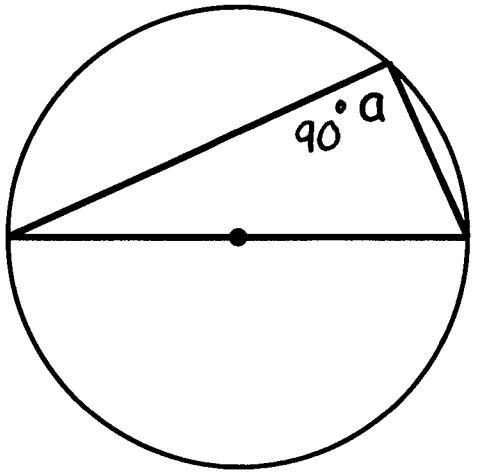


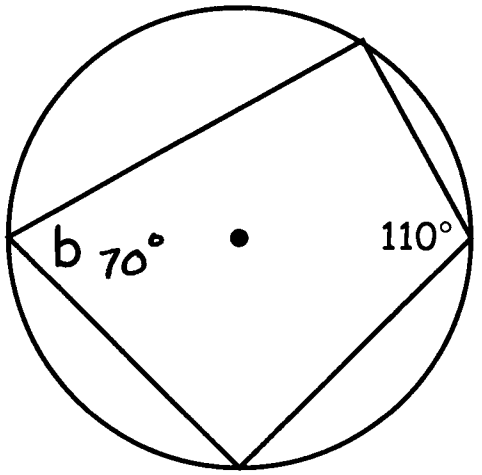
The alternate segment theorem. The angle between tangent and chord is equal to the angle in the alternate (other) segment

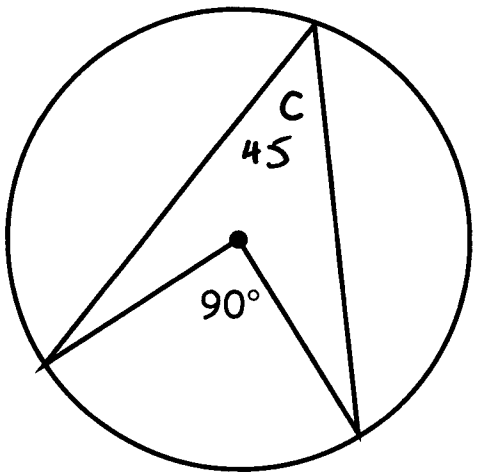


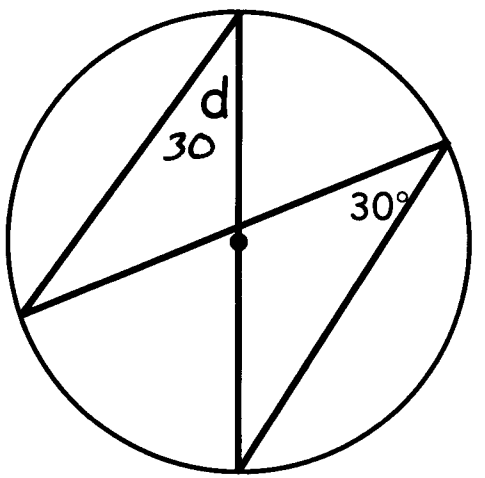


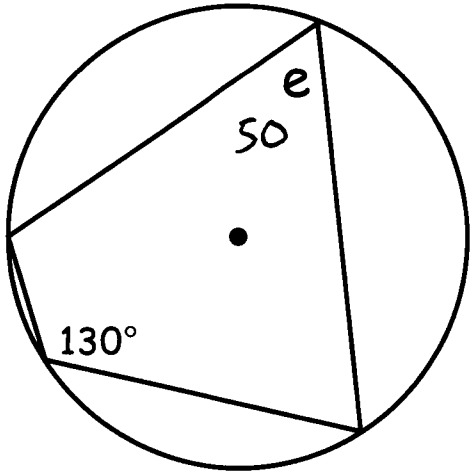
The perpendicular from the centre of a circle to a chord bisects the chord

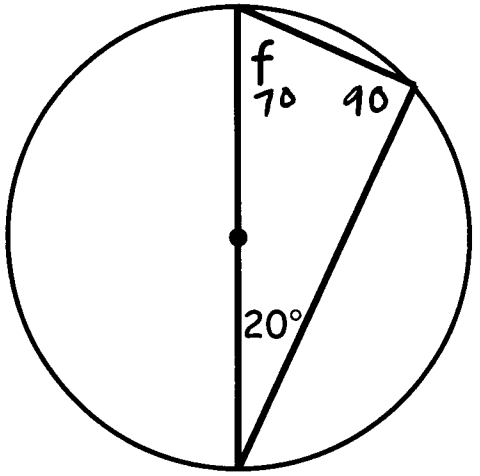

90°
a

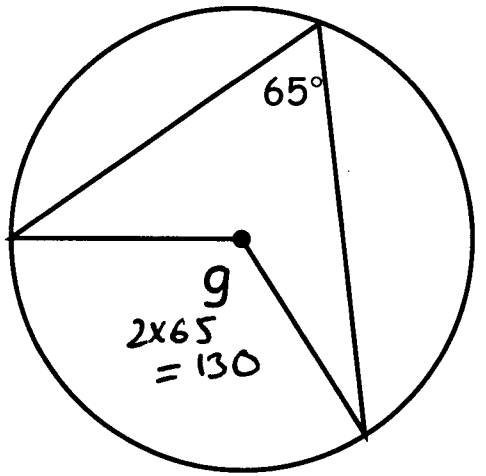

b
70°
110°

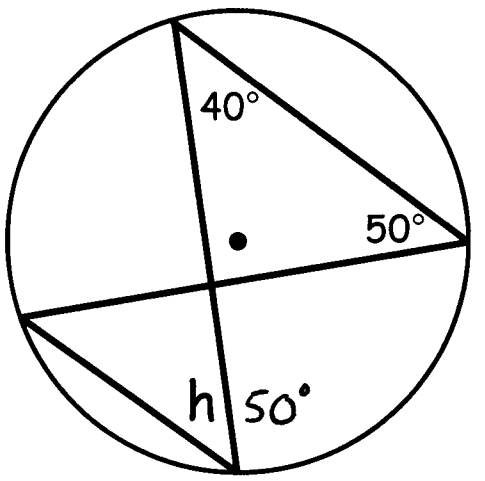

c
45
90°

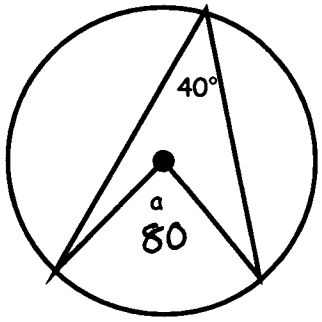

d
30
30°

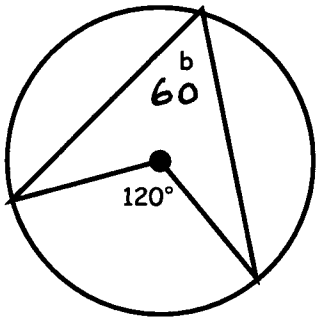

e
50
130°

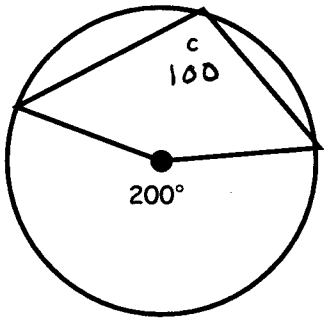

f
70
90
20°

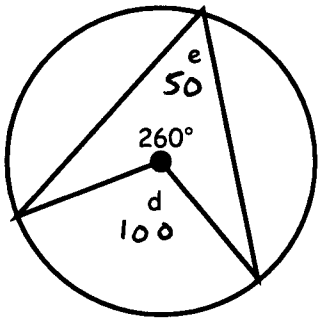

65°
g
2x65
=130

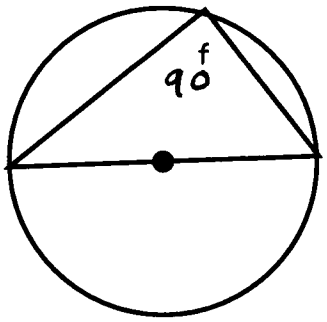

40°
50°
h
50°

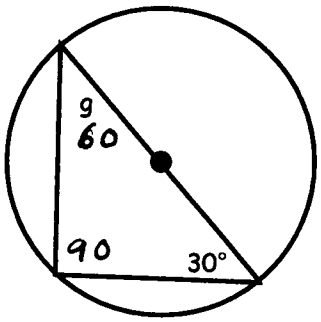


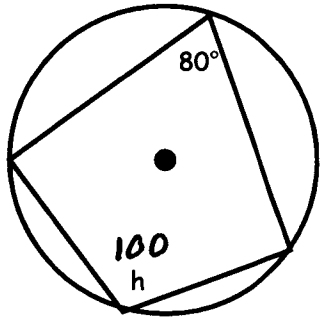


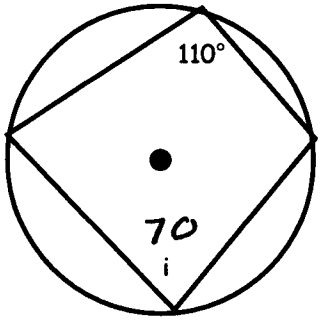


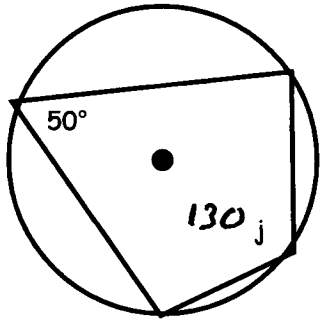


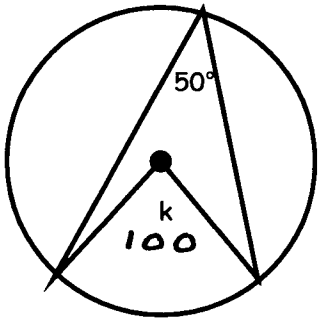


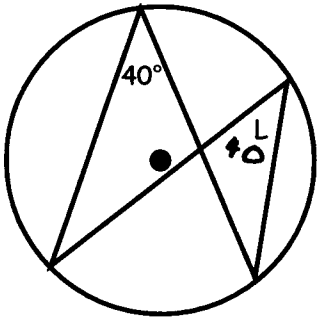


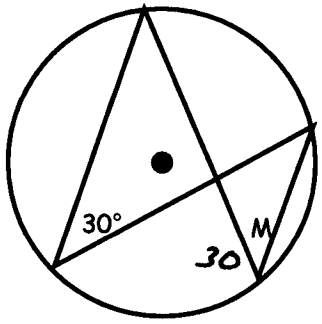


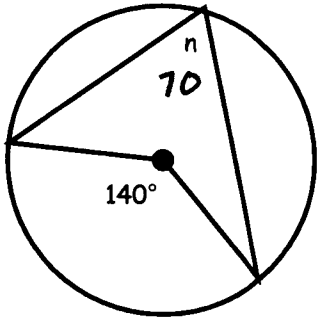


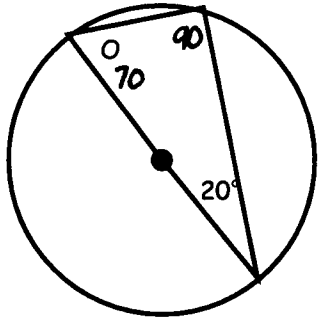


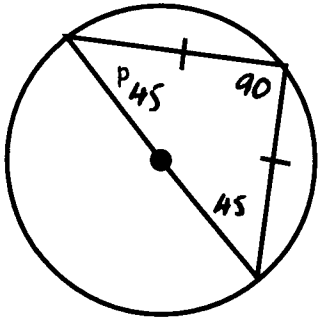


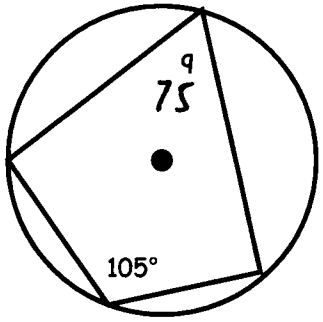


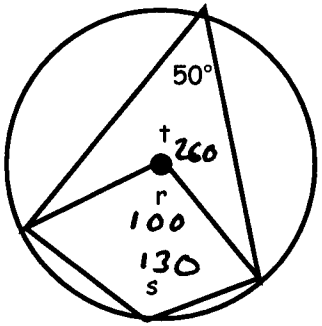


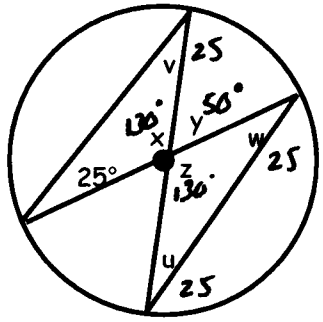




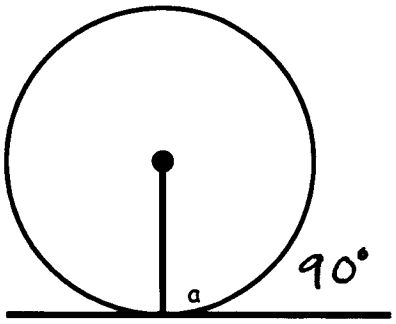


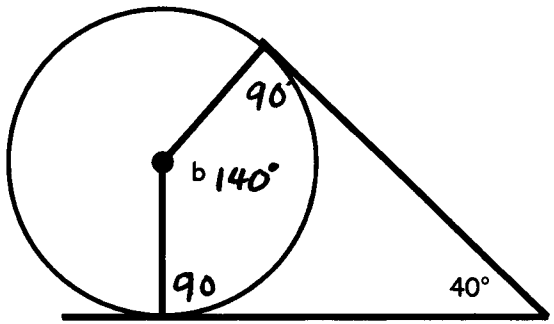


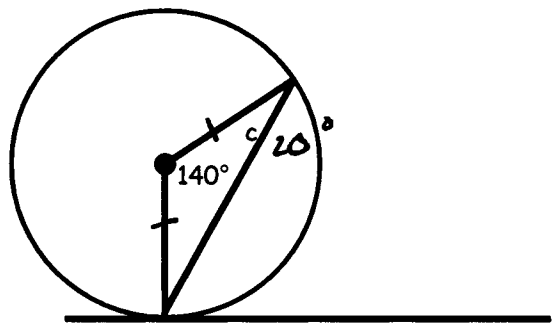


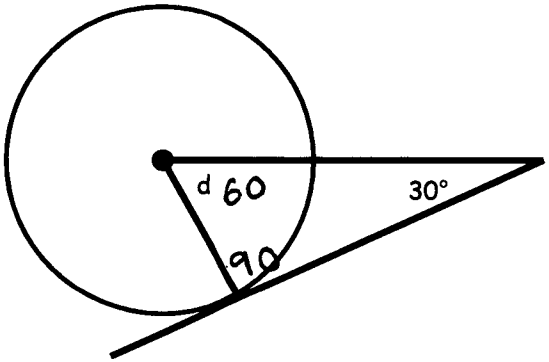


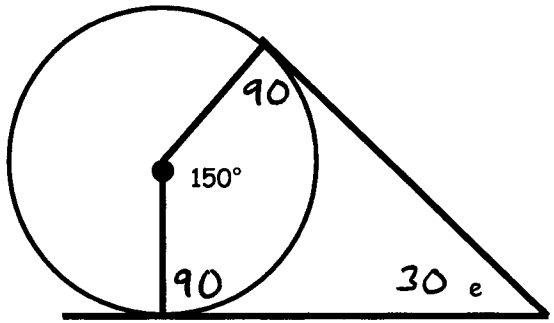
Isosceles triangle

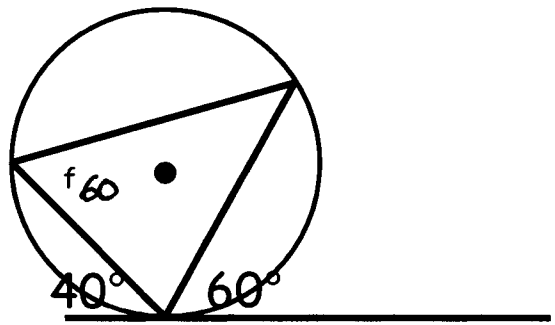

a
90°

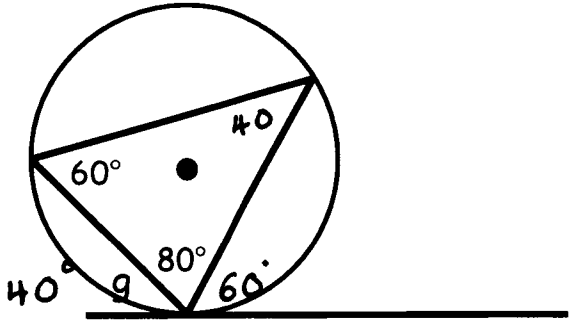

90°
b 140°
90
40°

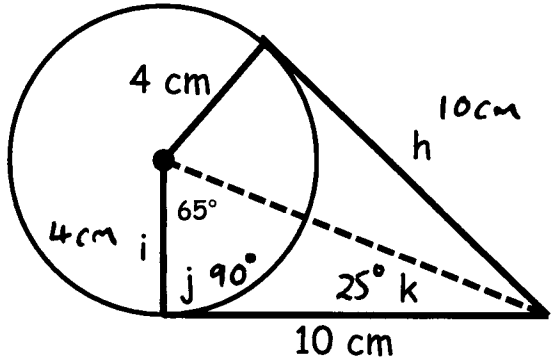

c
20°
140°

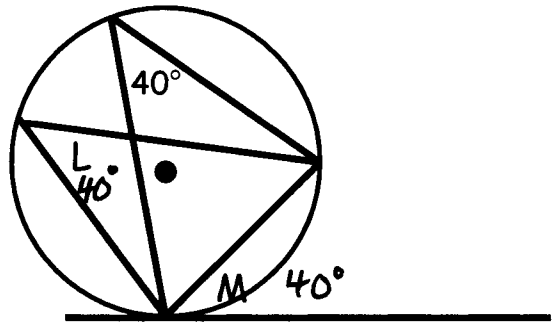

d 60
30°
90


90
150°
90
30 e

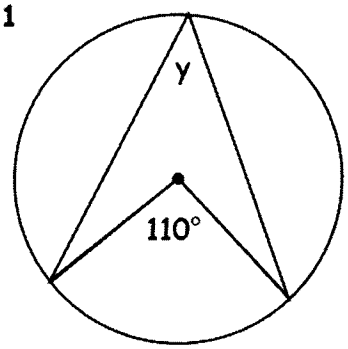

f 60
40°
60°


40
60°
80°
40°
g
60°


4 cm
10cm
h
65°
4cm
i
j 90°
25° k
10 cm


40°
L
40°
M
40°

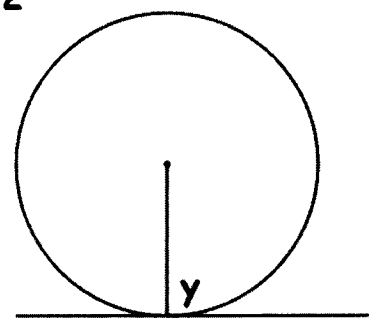
1



$y = 55$ $110 \div 2$

Angle at the centre is twice the angle at the circumference

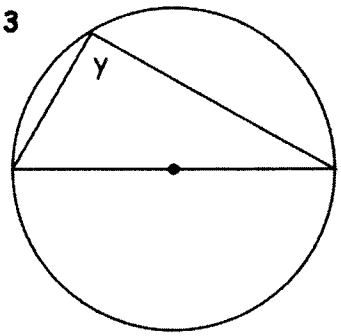
2



$y = 90°$

Angle between a radius and tangent is 90°

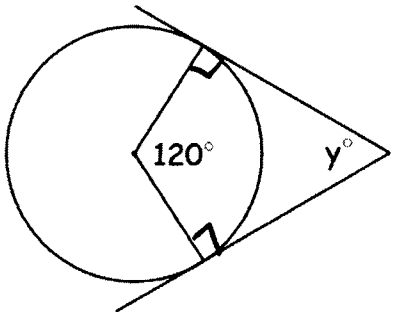
3



$y = 90°$

Angle in a semi-circle = 90°

4



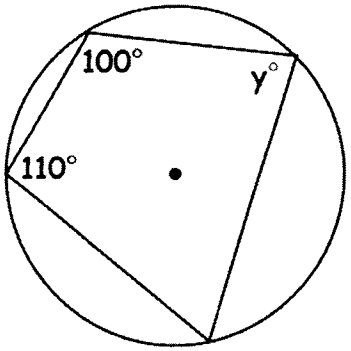
$y = 60$

Angles between radius and tangent = 90°

Angles in a quadrilateral = 360

$360 - 90 - 90 - 120 = 60$

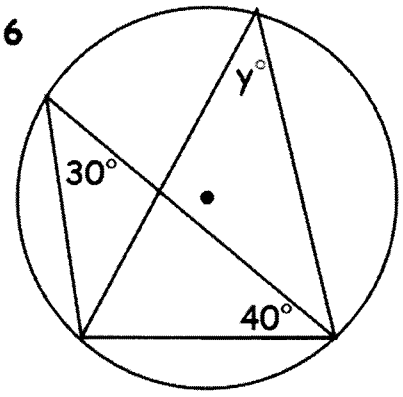
5



$y = 70°$

Opposite angles of a cyclic quadrilateral add to make 180°

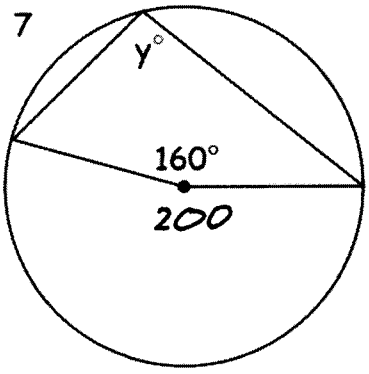
6



$y = 30°$

Angles in the same segment are equal.

7



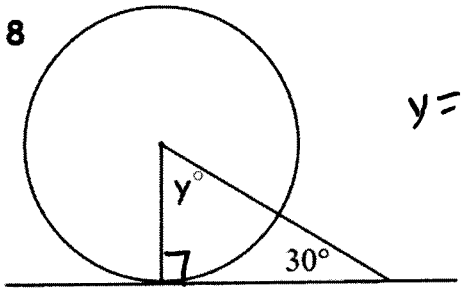
$y = 100$

Angles round a point = 360

$360 - 160 = 200$

Angle at centre is twice the angle at the circumference.

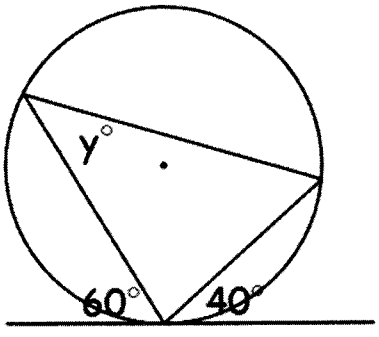
8



$y = 60$ Angle between a radius and tangent = 90°

Angles in a triangle = 180

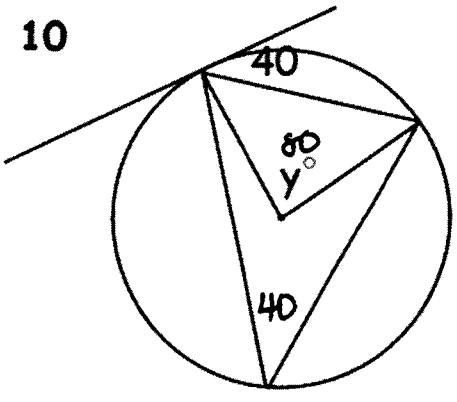
9



$y = 40$

Alternate segment theorem.

10



Alternate segment theorem.

Angle at circumference = 40°

Angle at centre = $2 \times 40 = 80°$