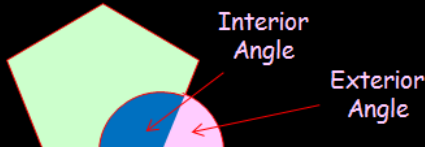


Outcome 1 - Interior/exterior angles in polygons, triangles in semi-circles/tangents to circles and right-angles/isosceles triangles

Bronze example

Example...

Calculate the interior and exterior angles of this regular pentagon...



Interior Angle

Exterior Angle

Interior angle = $180 - (360 \div 5)$

Interior angle = $180 - 72 = 108^\circ$

Exterior angle = $360 \div 5 = 72^\circ$

Silver examples

Example...

AB is a diameter of the circle. Calculate angles c and d.

$c = 90^\circ$ (angle opposite the diameter)

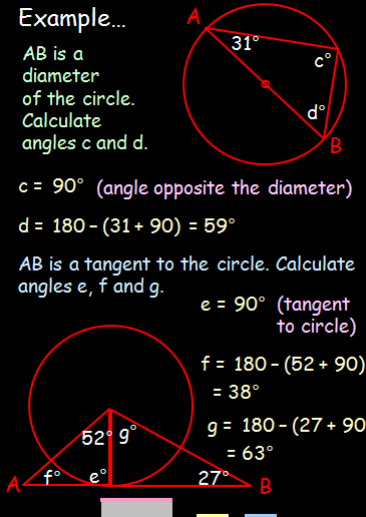
$d = 180 - (31 + 90) = 59^\circ$

AB is a tangent to the circle. Calculate angles e, f and g.

$e = 90^\circ$ (tangent to circle)

$f = 180 - (52 + 90) = 38^\circ$

$g = 180 - (27 + 90) = 63^\circ$



Gold example

Example...

O is the centre of the circle.

BC is a tangent to the circle at B.

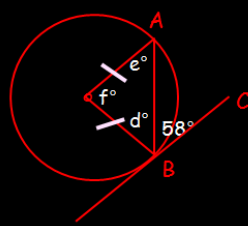
Calculate the size of angles d°, e° and f°.

$d = 90 - 58 = 32^\circ$

$e = 32^\circ$

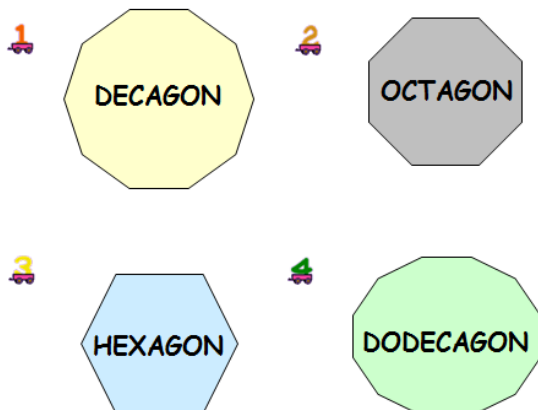
$f = 180 - (32 + 32) = 116^\circ$

1. Look for right angles!
2. Look for isosceles triangles!



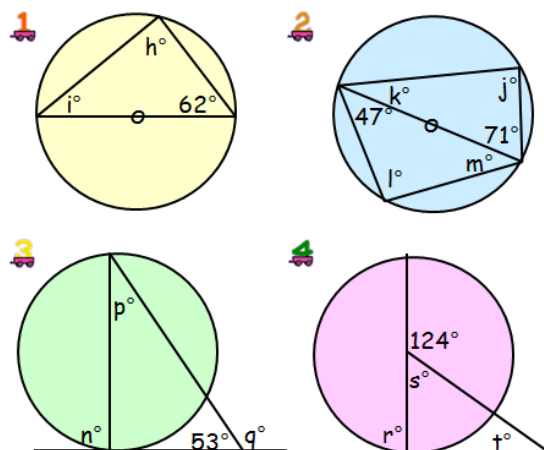
Bronze Questions

Calculate the interior and exterior angles of the following regular polygons...



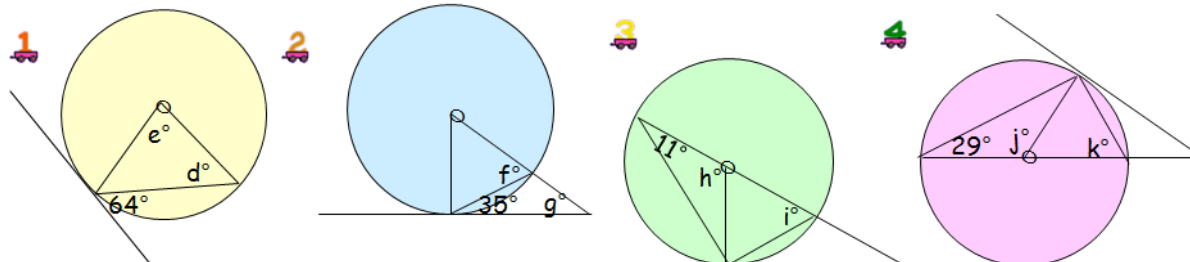
Silver Questions

Calculate the value of the missing angles in the circles below...



Gold Questions

Calculate the value of the missing angles in the circles below...



Bronze Answers

1. $144^\circ, 36^\circ$ 2. $135^\circ, 45^\circ$

3. $120^\circ, 60^\circ$ 4. $150^\circ, 30^\circ$

Silver Answers

$$h = 90^\circ, i = 28^\circ, j = 90^\circ, k = 19^\circ, l = 90^\circ, m = 43^\circ, \\ n = 90^\circ, p = 37^\circ, q = 127^\circ, r = 90^\circ, s = 56^\circ, t = 34^\circ$$

Gold Answers

$$d = 26^\circ, \quad e = 128^\circ, \quad f = 55^\circ, \quad g = 20^\circ, \\ h = 158^\circ, \quad i = 79^\circ, \quad j = 122^\circ, \quad k = 61^\circ$$