

Lesson 2: Reasoning about shapes and angles

Challenge
1

- 1 a A, B, C, F c A, B, E, G
b A, B, C, F d D, G

2 $a = 80^\circ, b = 50^\circ, c = 40^\circ$

Challenge
2

- 1 a A, F c C, E
b D, E d C, D, F

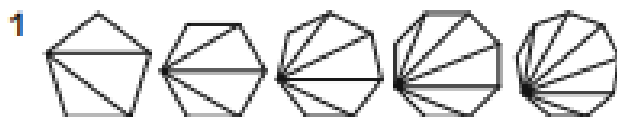
2 $a = 63^\circ, b = 61^\circ$
 $c = 88^\circ, d = 88^\circ$
 $e = 33^\circ, f = 52^\circ$

3 $a = 52^\circ, b = 52^\circ, c = 76^\circ$
 $d = 45^\circ, e = 45^\circ, f = 45^\circ, g = 135^\circ$
 $h = 70^\circ, i = 110^\circ, j = 110^\circ$
 $k = 120^\circ, l = 60^\circ, m = 90^\circ, n = 90^\circ$

Challenge
3

$36^\circ: d, g, h, k$
 $72^\circ: (a, \text{given}) c, e, f, j, l$
 $108^\circ: b, i$

Lesson 2, Extension: Angles in regular polygons



2

Number of sides	Number of triangles	Sum of interior angles	Size of interior angle
3	1	$180^\circ \times 1 = 180^\circ$	$180^\circ \div 3 = 60^\circ$
4	2	$180^\circ \times 2 = 360^\circ$	$360^\circ \div 4 = 90^\circ$
5	3	$180^\circ \times 3 = 540^\circ$	$540^\circ \div 5 = 108^\circ$
6	4	$180^\circ \times 4 = 720^\circ$	$720^\circ \div 6 = 120^\circ$
7	5	$180^\circ \times 5 = 900^\circ$	$900^\circ \div 7 = 129^\circ$
8	6	$180^\circ \times 6 = 1080^\circ$	$1080^\circ \div 8 = 135^\circ$
9	7	$180^\circ \times 7 = 1260^\circ$	$1260^\circ \div 9 = 140^\circ$

3 Sum of interior angles = 1800°
Size of interior angle = 150°