

# Finding Angles in Regular Polygons

## ANSWERS



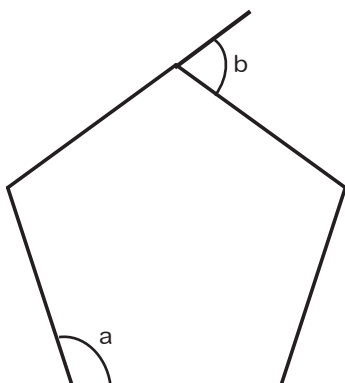
### Section A

- 1) Find the size of each interior angle in a regular hexagon.  $120^\circ$
- 2) Find the size of each interior angle in a regular nonagon.  $140^\circ$
- 3) Find the size of each exterior angle in a regular dodecagon.  $30^\circ$
- 4) Write an expression for the sum of the interior angles in a polygon with  $n$  sides.  $180(n - 2)$
- 5) Write an expression for the size of each interior angle in a polygon with  $n$  sides.  $180(n - 2)/n$
- 6) Write an expression for the size of each exterior angle in a polygon with  $n$  sides.  $360/n$

### Section B

 Find the angles indicated. Each question contains one or more regular polygon.

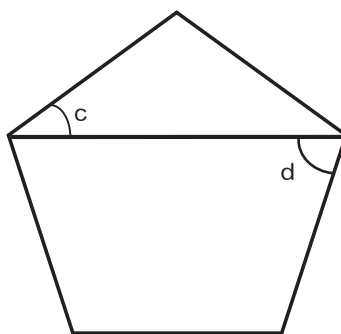
1)



$$a = 108^\circ$$

$$b = 72^\circ$$

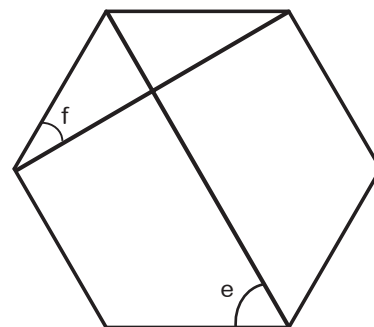
2)



$$c = 36^\circ$$

$$d = 72^\circ$$

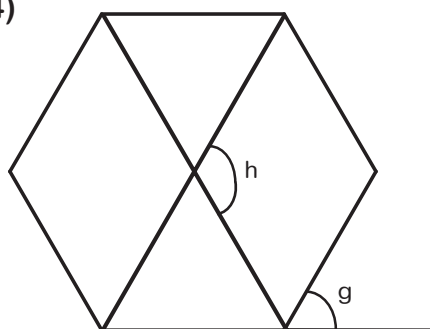
3)



$$e = 60^\circ$$

$$f = 30^\circ$$

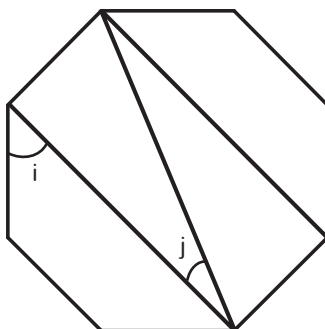
4)



$$g = 60^\circ$$

$$h = 120^\circ$$

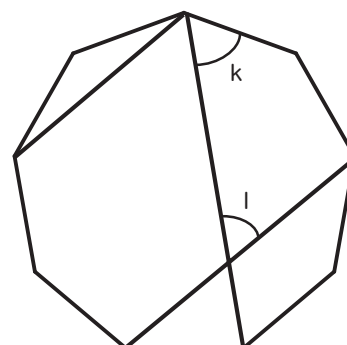
5)



$$i = 45^\circ$$

$$j = 22.5^\circ$$

6)



$$k = 60^\circ$$

$$l = 60^\circ$$

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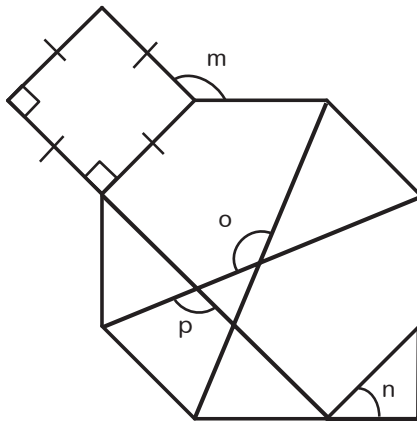
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### Section B (con't.)

Find the angles indicated. Each question contains one or more regular polygon.

7)



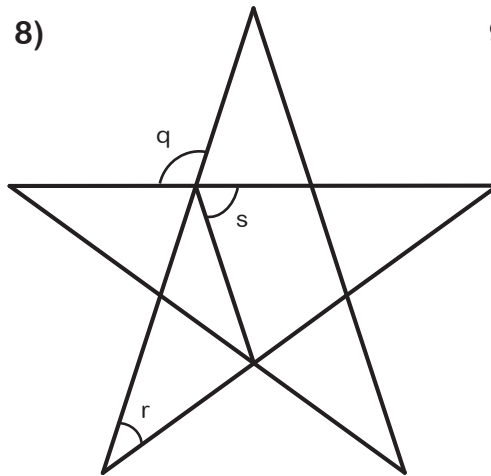
$$m = 135^\circ$$

$$n = 45^\circ$$

$$o = 135^\circ$$

$$p = 112.5^\circ$$

8)

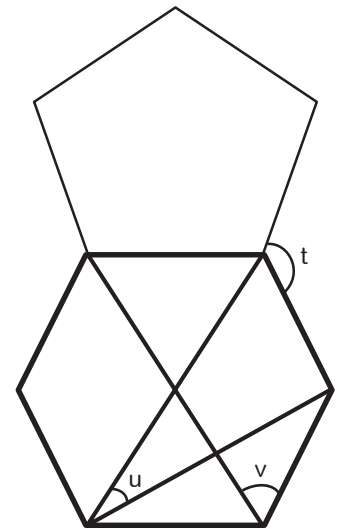


$$q = 108^\circ$$

$$r = 36^\circ$$

$$s = 72^\circ$$

9)



$$t = 132^\circ$$

$$u = 30^\circ$$

$$v = 60^\circ$$

*Hint: Look for symmetry in order to assume parallel and perpendicular lines!*