

FOM 11 - Unit 1 Test - Angles and Proofs - Version P

First Name:

Last Name:

Block:

Key (P)

Learning Outcomes	Can Start		Can Partially		Can Do	
1. Can interior and exterior angle values of regular polygons						
2. Can solve for missing angles when given partial information from an image.						
3. Can prove the relationship of angles when provided with given pieces of information						
TEST SCORE	0	1	2	3	4	5

PART 1:	Can Start		Can Partially		Can Do	
Can interior and exterior angle values of regular polygons						

1. Find the measure of each *interior* and *exterior* angle of a regular 11-sided polygon.

$$\text{Exterior angle} = \frac{360}{n} = \frac{360}{11} = 32.73^\circ$$

$$\text{Interior} + \text{exterior} = 180^\circ$$

$$\text{Int} + 32.73^\circ = 180^\circ$$

$$\text{Int} = 147.27$$

$$\text{Ext} = 32.73$$

2. If the measure of each *exterior* angle of a regular polygon is 30° then how many sides does the polygon have?

$$\text{Exterior angle} = \frac{360}{n}$$

$$30 = \frac{360}{n}$$

$$n = \frac{360}{30}$$

$$n = 12$$

3. What is the *interior* angle *sum* of a 9-sided polygon?

$$\text{Interior angle sum} = (n-2)180^\circ$$

$$= (9-2)180$$

$$= 1260^\circ$$

4. Find the number of sides of a *regular* polygon if one of the *interior* angles is 5 times the *adjacent exterior* angle (2 marks). HINT: Let the interior angle be $5x$ and the exterior angle be x . Also remember that these two angles are *supplementary*. A diagram might help.

$$\text{let } x = \text{exterior angle}$$

$$5x + x = 180$$

$$6x = 180$$

$$x = 30^\circ$$

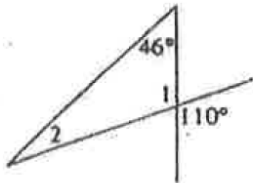
exterior

$$5x = 150^\circ$$

Interior

PART 2:	Can Start		Can Partially		Can Do	
Can solve for missing angles when given partial information from an image.						

For each of the following, find the missing angle and state a reason for each answer.

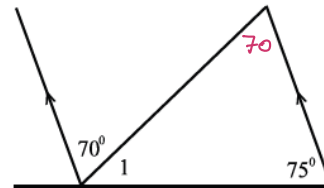


$\angle 1 = 110^\circ$

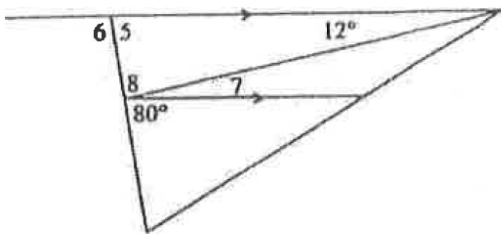
Reason: Vertically opposite

$\angle 2 = 24^\circ$

Reason: Sum of $\Delta = 180^\circ$



$\angle 1 = 35^\circ$ Reason: Sum of $\Delta = 180^\circ$



$\angle 5 = 80^\circ$

Reason: Corresponding

$\angle 6 = 100^\circ$

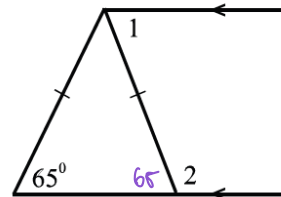
Reason: Straight line supplementary $\angle 2 = 115^\circ$ Reason: Straight line supplementary

$\angle 7 = 12^\circ$

Reason: Alternate Interior

$\angle 8 = 88^\circ$

Reason: Straight line supplementary



$\angle 1 = 65^\circ$ Reason: Alternate Interior

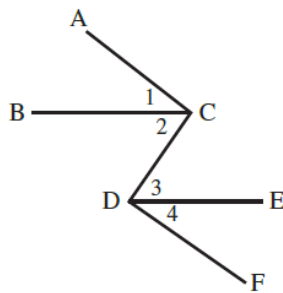
PART 3:	Can Start		Can Partially		Can Do	
	Can prove the relationship of angles when provided with given pieces of information					

Prove the following

Given: $\angle ACD = \angle CDF$

$\angle 1 = \angle 4$

Prove: $BC \parallel DE$

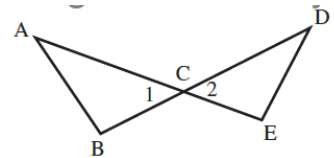


Statement	Reason
1. $\angle ACD = \angle CDF$	Given
2. $\angle 1 + \angle 2 = \angle 3 + \angle 4$	addition of angles
3. $\angle 1 = \angle 4$	Given
4. $\angle 1 + \angle 2 = \angle 3 + \angle 1$	Substitution
5. $\angle 2 = \angle 3$	Subtraction
6. $BC \parallel DE$	Alt. Int.

Given: $AB \perp BD$

$DE \perp AE$

Prove: $\angle A = \angle D$

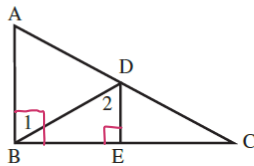


Statement	Reason
1. $AB \perp BD$	Given
2. $DE \perp AE$	Given
3. $\angle B = \angle E$	Both = 90°
4. $\angle 1 = \angle 2$	Vert. opp.
5. $\angle A = \angle D$	Sum of $\Delta = 180^\circ$

Given: $AB \perp BC$

$DE \perp BC$

Prove: $\angle 1 = \angle 2$

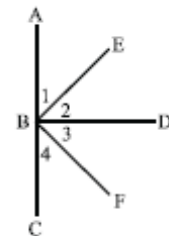


Statement	Reason
$AB \perp BC$	Given
$DE \perp BC$	Given
$AB \parallel DE$	Same side interior
$\angle 1 = \angle 2$	Alt. Int.

Given: $AC \perp BD$

BD bisects $\angle EBF$

Prove: $\angle 1 = \angle 4$



Statement	Reason
$AC \perp BD$	Given
BD bisects $\angle EBF$	Given
$\angle 2 = \angle 3$	definition of bisection
$\angle 1 + \angle 2 = 90^\circ$	Complementary
$\angle 3 + \angle 4 = 90^\circ$	Complementary
$\angle 1 + \angle 2 = \angle 3 + \angle 4$	Both sum to 90°
$\angle 1 + \angle 2 = \angle 2 + \angle 4$	Substitution
$\angle 1 = \angle 4$	Substitution

