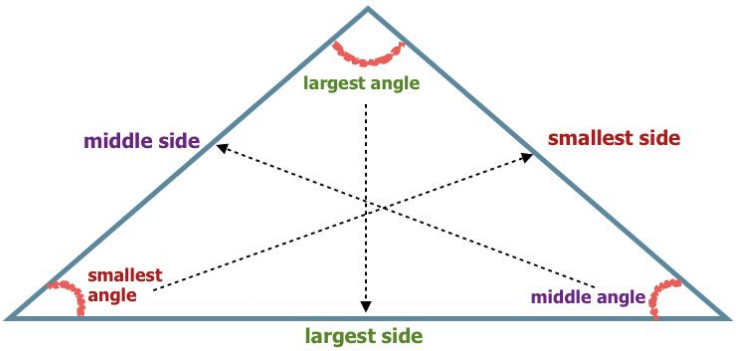
The SAT Initiative

G5 Topic Breakdown
SOL - Geometry
Nicole D'Onofrio

Given information about length of sides and measures of angles:

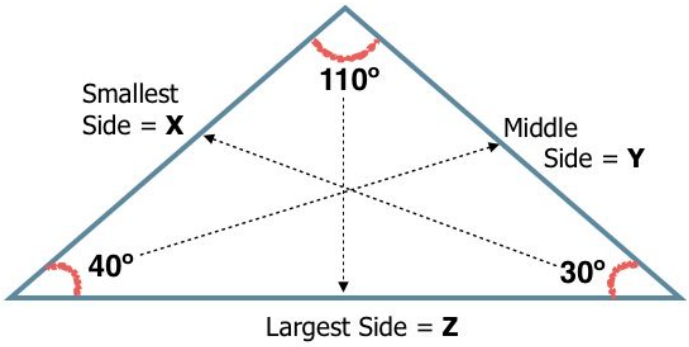
1. *Order sides by length, given the angle measures*
2. *Order angle by degree measure, given side lengths*



1 → Put either the length of sides or angles in order from smallest to largest

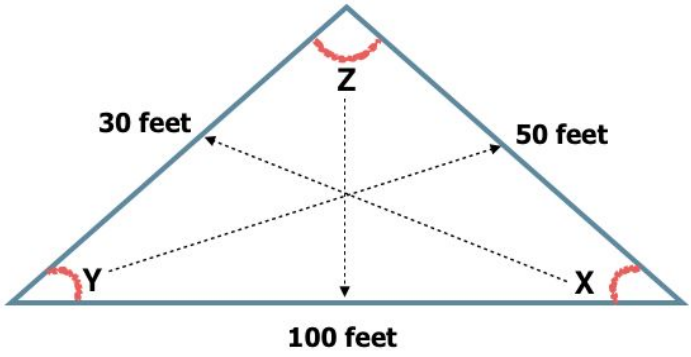
2 → Opposite angles-sides are then ordered in the same way, smallest to largest

Ex. If Angle Z is the largest angle and it is ***across*** from Side Z, then Side Z is the largest side.



Task: Order the sides from smallest to largest, using the angles given.

1→ (Angles Given) 30°, 40°, 110°
2→ (Side Order) X, Y, Z



Task: Order the angles from largest to smallest, using the side lengths given.

1 → (Sides given) 100 ft, 50 ft, 30 ft
2 → Z, Y, X

Task: Determining *if a triangle can exist*, using the given lengths.

Given: 8 , 5 , 4

Formula: One side + Another side > The largest side

5 + 4 > 8

9 > 8 CORRECT

Answer: This triangle exists.

Task: Determining *if a triangle can exist*, using the given lengths.

Given: 8 , 5 , 3

Formula: One side + Another side > The largest side

5 + 3 > 8

8 > 8 INCORRECT

Answer: This triangle does not exist.

Shape Names Based on # of Sides

# of Sides	Name	# of Sides	Name	# of Sides	Name
3	triangle	6	hexagon	9	nonagon
4	quadrilateral	7	heptagon	10	decagon
5	pentagon	8	octagon	12	dodecagon

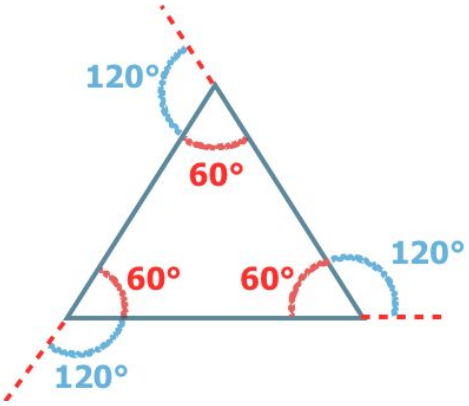
Degree of an Exterior Angle
360° / n = Exterior Angle

Sum of Exterior Angles
Always 360°

Degree of an Interior Angle
180° - Exterior Angle = Interior Angle

Sum of Interior Angles
(Interior Angle)(n)
OR
180° (n - 2)

* n = number of sides in a shape

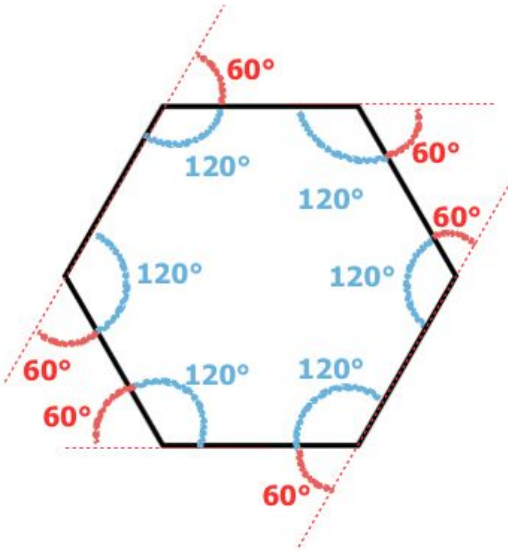


Exterior Angle
360 / n
360 / 3
120°

Sum of Exterior Angles
360°

Interior Angle
180° - exterior angle
180° - 120°
60°

Sum of Interior Angles
Interior Angle (n)
60° (3)
120°

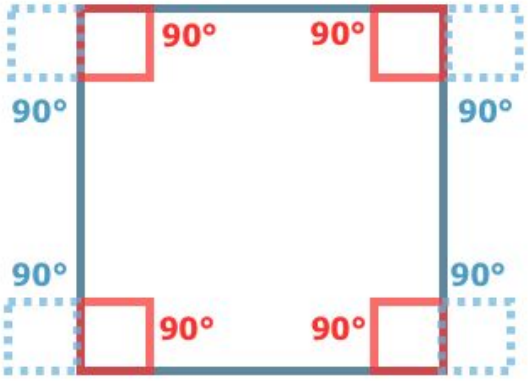


Exterior Angle
360° / n
360° / 6
60°

Sum of Exterior Angles
360°

Interior Angle
180° - exterior angle
180° - 60°
120°

Sum of Interior Angles
Interior Angle (n)
120° (6)
720°



Exterior Angle
360° / 4
360° / 4
90°

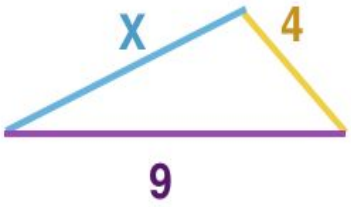
Sum of Exterior Angles
360°

Interior Angle
180° - exterior angle
180° - 90°
90°

Sum of Interior Angles
Interior Angle (n)
90° (4)
360°

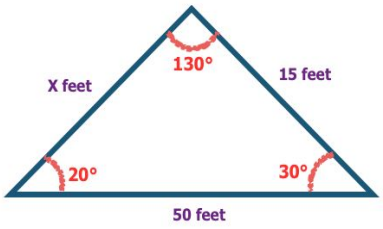
Practice Problems

G.5 Review



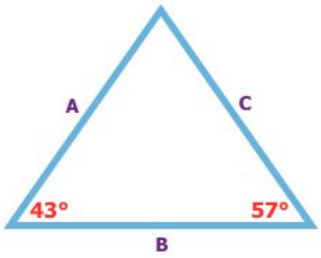
1. Determine a possible length for the missing side, X, of the triangle.

A) 5
B) 7
C) 4
D) 3



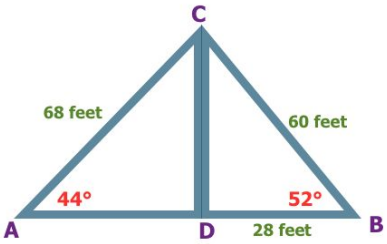
2. The above triangle has sides of 50 feet, 15 feet, and X feet. Find a possible value of X, using the angles given.

A) 85 feet
B) 36 feet
C) 30 feet
D) 13 feet



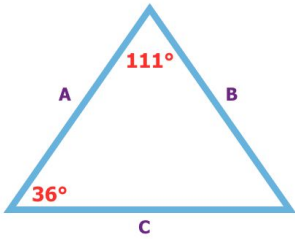
3. The triangle above shows two angles. Using the information given, order sides A, B, and C, from shortest to longest.

A) C-A-B
B) A-C-B
C) B-A-C
D) A-C-B



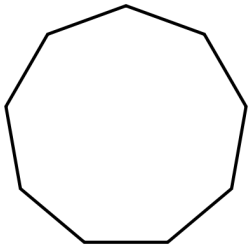
4. The triangle shows Segment AC has a length of 68 feet and Segment BD has a length of 28 feet. Line segment AB has a total length of 70 feet. Which of the following could be a possible length of Segment CD?

A) 24 feet
B) 61 feet
C) 33 feet
D) 42 feet



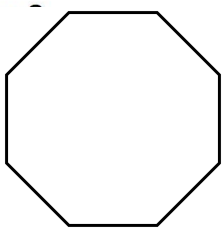
5. Which of the following sides, in the triangle above, is the shortest?

A) A
B) B
C) C



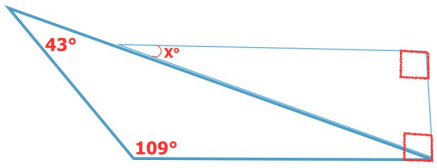
6. What is the sum of the exterior angles of a nonagon?

A) 1260°
B) 90°
C) 180°
D) 360°



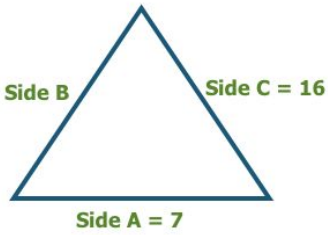
7. Find the sum of the interior angles in an octagon.

A) 720°
B) 1080°
C) 360°
D) 1440°



8. The figure above shows two triangles. Using the information given, solve for X.

A) 28°
B) 45°
C) 118°
D) 62°



9. In the triangle above, Side A = 7 Side C = 16. What is a possible length of Side B?

A) 9
B) 7
C) 10
D) 8

Answer Key: Practice Problems

G.5 Geometry

1.	**B**
2.	**B**
3.	**A**
4.	**C**
5.	**A**
6.	**D**
7.	**B**
8.	**A**
9.	**C**