

Do the 3 sides below create a triangle? Use what you learned on the front side to say Yes or No. SHOW work to prove your answer.

A) 5, 10, 12

$$\begin{aligned} 5 + 10 &> 12 \\ 15 &> 12 \end{aligned}$$

yes

B) 15, 10, 5

$$\begin{aligned} 5 + 10 &> 15 \\ 15 &\not> 15 \end{aligned}$$

No

C) 7, 5, 10

$$\begin{aligned} 5 + 7 &> 10 \\ 12 &> 10 \end{aligned}$$

yes

D) 9, 9, 9

$$\begin{aligned} 9 + 9 &> 9 \\ 18 &> 9 \end{aligned}$$

yes

E) Create 3 sides that make a triangle. Prove it

$$6, 7, 10$$

$$6, 6, 8$$

F) Create 3 sides that don't make a triangle. Prove it.

$$1, 2, 5$$

$$1, 4, 5$$

### Part 3

On this side, you will be drawing angles and deciding if they form a triangle or not.

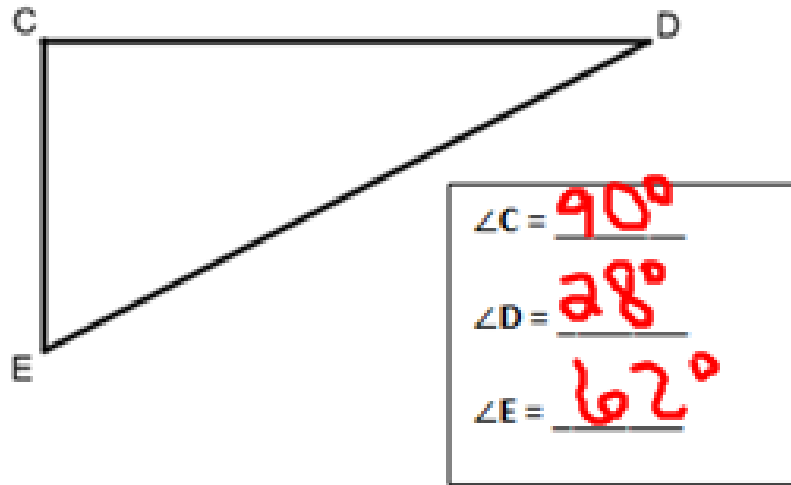
1) Draw an angle with the given measure below.

A)  $55^\circ$

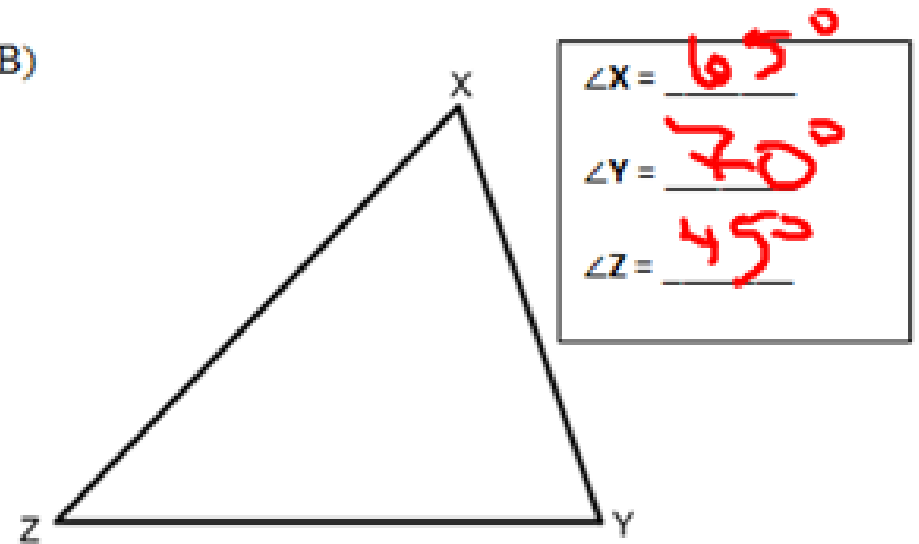
B)  $100^\circ$

2) Measure the angles in the triangle below.

A)



B)



For each of the triangles above, find the sum of the 3 angles that form the triangle (angle sum).

$\triangle CDE$  Angle Sum = 180°

$90 + 28 + 62$

$\triangle XYZ$  Angle Sum = 180°

$65 + 70 + 45$

The three angles that make up every triangle always add up to 180 degrees.

3) Use the line segment below as one of the sides of a triangle.

- 1) Create the given 2 angles on each end of the triangle
- 2) Extend those lines until they meet to form a triangle
- 3) Measure the 3<sup>rd</sup> angle

A) Angle A:  $40^\circ$

Angle B:  $40^\circ$

Angle C:       $^\circ$



B) Angle A:  $35^\circ$

Angle B:  $70^\circ$

Angle C:       $^\circ$



4) Using the information above, tell whether the angle measures can be those of a triangle. Show work to prove why the angles would or wouldn't make a triangle.

A)  $15^\circ, 160^\circ, 15^\circ$

$$15 + 160 + 15 \\ = 190 \\ \text{No}$$

B)  $22^\circ, 92^\circ, 66^\circ$

$$22 + 92 + 66 \\ = 180^\circ \\ \text{Yes}$$

C)  $102^\circ, 12^\circ, 65^\circ$

$$102 + 12 + 65 \\ = 179^\circ \\ \text{No}$$

D)  $155^\circ, 11^\circ, 14^\circ$

$$= 180 \\ \text{Yes}$$

E)  $39^\circ, 68^\circ, 73^\circ$

$$= 180 \\ \text{Yes}$$

F)  $96^\circ, 44^\circ, 41^\circ$

$$= 181^\circ \\ \text{Nope}$$