

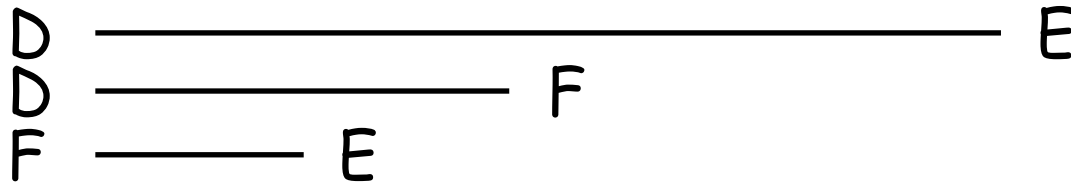
3.6 Constructions Problems

Objectives:

- I CAN explore through construction whether or not a triangle can be determined given certain parts.
- I CAN pull together a variety of construction techniques.

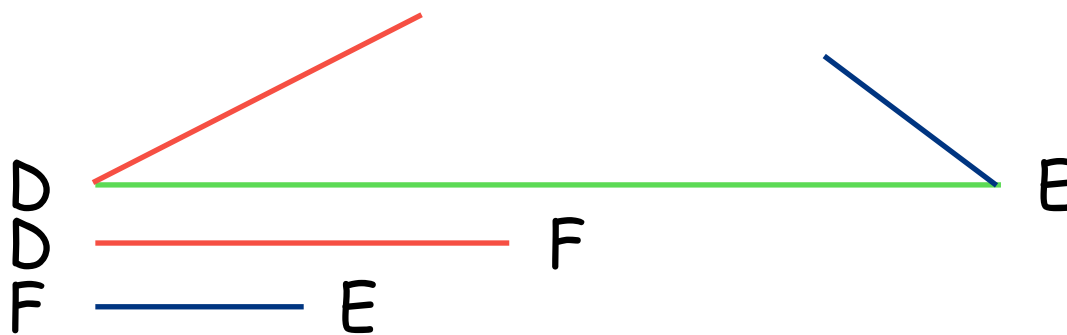
Make A Triangle

Construct triangle DEF.



Make A Triangle

Construct triangle DEF.



Make A Triangle

Construct triangle DEF.



Make A Triangle

Construct triangle DEF.



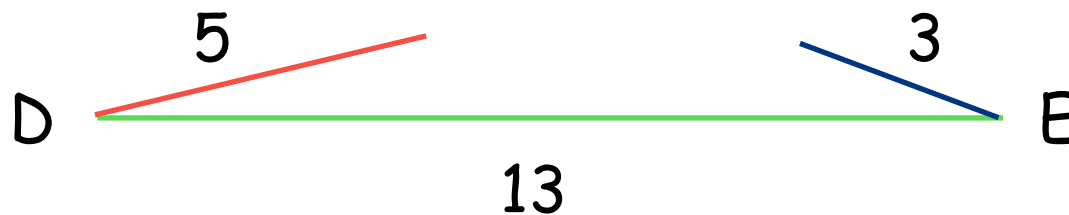
Make A Triangle

Construct triangle DEF.



Make A Triangle

Construct triangle DEF.



Q: What's the problem with this?

A: They don't add up.

Make A Triangle

Triangle Inequality Conjecture

The sum of the lengths of any two sides of a triangle is **greater than** the length of the third side.

Make A Triangle

Can the following lengths form a triangle?

1. 4 mm
5 mm
10 mm

2. 2 ft
9 ft
13 ft

3. 5 cm
2 cm
4 cm

4. 7 ft
15 ft
13 ft

5. 10 mm
3 mm
6 mm

6. 7 ft
7 ft
7 ft

7. 10 mm
13 mm
5 mm

8. 8 m
7 m
1 m

9. 9 mm
2 mm
1 mm

10. 12 mm
22 mm
13 mm

11. 7 mm
8 mm
12 mm

12. 1 mm
5 mm
3 mm

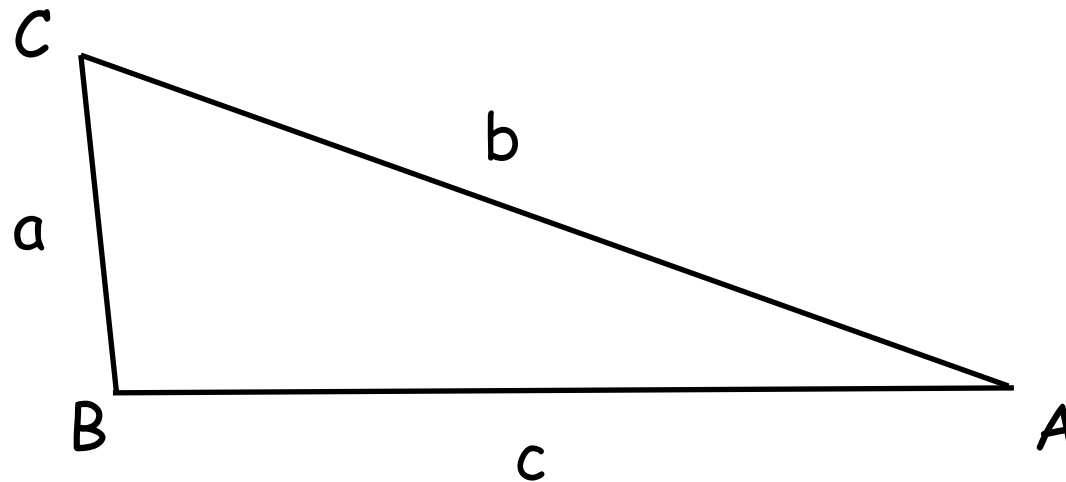


Construction Problems

Construct $\triangle ABC$ using the three segments \overline{AB} , \overline{BC} , and \overline{CA} shown below.



Side - Angle



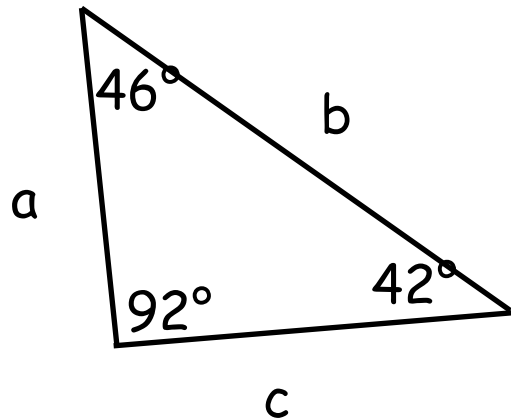
What's the biggest side? **b**

What's the biggest angle? **B**

What's the smallest side? **a**

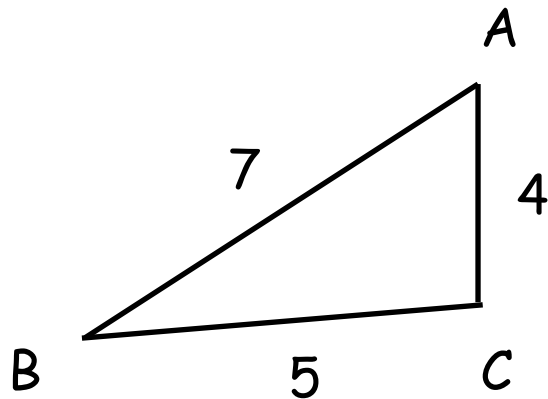
What's the smallest angle? **A**

Side-Angle



Rank the sides from greatest to least.

b
c
a



Rank the angles from greatest to least.

C
A
B

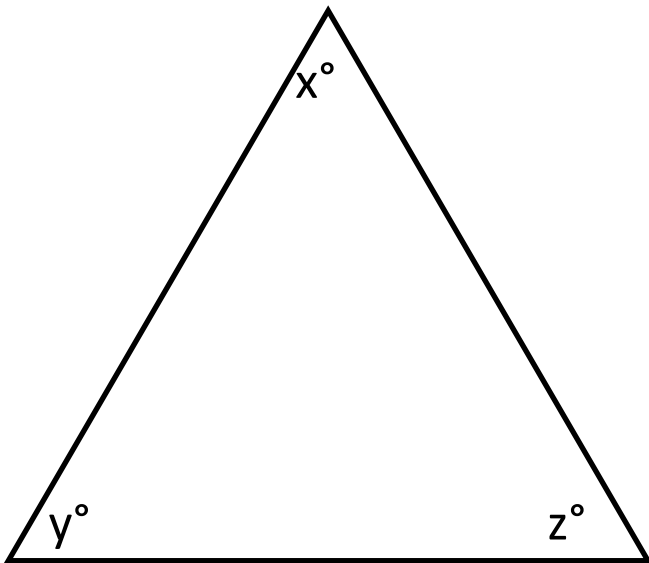
Side - Angle

Side-Angle Conjecture

In a triangle, if one side is longer than another side, then angle opposite the longer side is larger than the other.

Side-Angle

$$x + y + z = \boxed{180^\circ}$$



Triangle Sum Conjecture

The sum of the measures of the angles in every triangle is