

Constructing Triangles

Part 1

Can any three side lengths form a triangle? Using the computer applet, make and study several test triangles using the steps below.

Determine if the triangle is possible, and write yes or no.

For this activity, consider the 3 sides that may/may not form a triangle.

Note: In this app, put the longest side along the bottom of the triangle.

To get to the app used on this WS

- 1) Google search → (PBS Learning Media Triangles)
- 2) Click on the first option → (Constructing Triangles)
- 3) Click on Launch to use the app

Put a star by the longest side length in the table

-If there are 2 or more that are the longest, just put a star by one of them.

Part 2

For the following problems,


Side Length A	Side Length B	Side Length C	Triangle Possible?
4 *	4	4	yes
4 *	3	2	yes
3 *	2	1	No
9 *	3	3	No
10 *	6	6	yes
3	6 *	3	No
6	5	9 *	yes
4	5 *	5	yes
5	3	9 *	No
7 *	4	6	yes

Part 2

For the following problems,


- 1) Identify the shorter sides and longest side of the triangle.
- 2) Do they make a triangle? (Circle yes/No)
- 3) Draw a sketch

A) 8 5 6
Shorter 2 sides? 5 and 6
Longest Side? 8
Make a triangle? Yes or No
Sketch



B) 5 5 10
Shorter 2 sides? 5 and 5
Longest Side? 10
Make a triangle? Yes or No
Sketch

C) 4 8 3
Shorter 2 sides? 4 and 3
Longest Side? 8
Make a triangle? Yes or No
Sketch



D) 6 4 3
Shorter 2 sides? 4 and 3
Longest Side? 6
Make a triangle? Yes or No
Sketch

Will 3 sides form a triangle?

3 Sides that MAKE a Δ

If you add the 2 shorter sides together, that number should be greater than the longest side \rightarrow DOES MAKE a Δ

3 Sides that DON'T MAKE a Δ

If I add the 2 shorter sides together and that number equal to or less than the longest side \rightarrow DOES NOT MAKE a Δ

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°

B) 100°