



Drawing shapes with given conditions

GRADE 7 MATH

Name _____

Date _____

Work in order. For side lengths, compare the two shorter with the longest. Say how many triangles are possible. One skill: **drawing with conditions**.

WORKED EXAMPLE

Three sides: a triangle exists only when the two shorter sides **add to more than** the longest. Equal is not enough — that gives a flat line. **Three angles:** must sum to 180° , and then give infinitely many triangles of different sizes.

1. Can a triangle have sides 6, 8 and 10?

FLUENCY

Show your thinking

Answer

2. Can a triangle have sides 2, 3 and 6?

FLUENCY

Show your thinking

Answer

3. Can a triangle have sides 7, 7 and 7?

FLUENCY

Show your thinking

Answer

4. Can a triangle have sides 1, 1 and 2?

APPLICATION

Show your thinking

Answer

5. Can a triangle have sides 4, 9 and 12?

APPLICATION

Show your thinking

Answer

6. Can a triangle have angles 90° , 45° and 45° ? How many such triangles are there?

APPLICATION

Show your thinking

Answer

7. Can a triangle have angles 90° , 90° and 10° ? Explain.

REASONING

Show your thinking

Answer

8. A triangle has angles 50° and 60° . Find the third angle.

APPLICATION

Show your thinking

Answer

9. For sides 3, 4 and 10, by how much do the short sides fall short? Explain what would need to change for a triangle to exist.

REASONING

Show your thinking

Answer