Take a moment and think critically about whether the following tasks are possible:

1. Can you construct a triangle with side lengths of 3 cm, 3 cm, and 3 cm?
2. Can you construct a triangle with side lengths of 3 cm, 4 cm, and 5 cm?
3. Can you construct a triangle with side lengths of 3 cm, 3 cm, and 7 cm?
Theorem 5-12: The Triangle Inequality Theorem: The sum of the lengths of any two sides of a triangle is greater than the length of the third side.
In the triangles below, which side is longer? $\overline{AC}$ or $\overline{DF}$?

Theorem 5-13: SAS Inequality (Hinge Theorem): If two sides of one triangle are congruent to two sides of another triangle, \textbf{and} the \textbf{included} angle in one triangle is greater than the \textbf{included} angle in the other, then the third side of the first triangle is longer than the third side of the second triangle.
In the triangles below, which angle is larger? $\angle ABC$ or $\angle DEF$?

Theorem 5-15: SSS Inequality: If two sides of one triangle are congruent to two sides of another triangle, and the third side of the first triangle is longer than the third side of the second triangle, then the angle between the congruent sides in the first triangle is larger than the angle between the congruent sides in the second triangle.