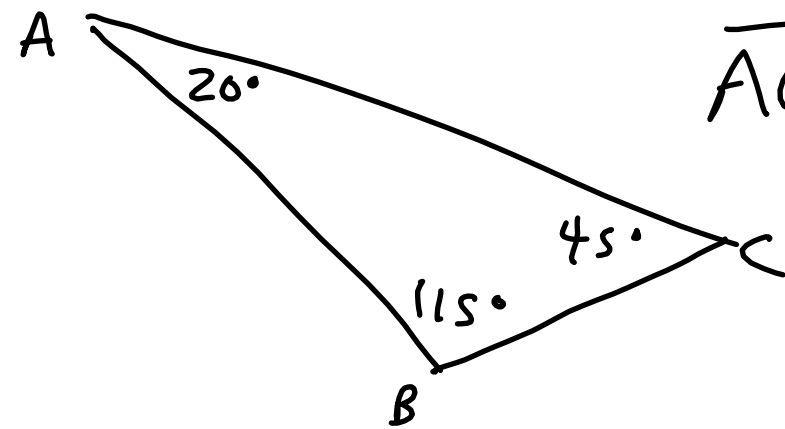


# Inequalities in Triangles

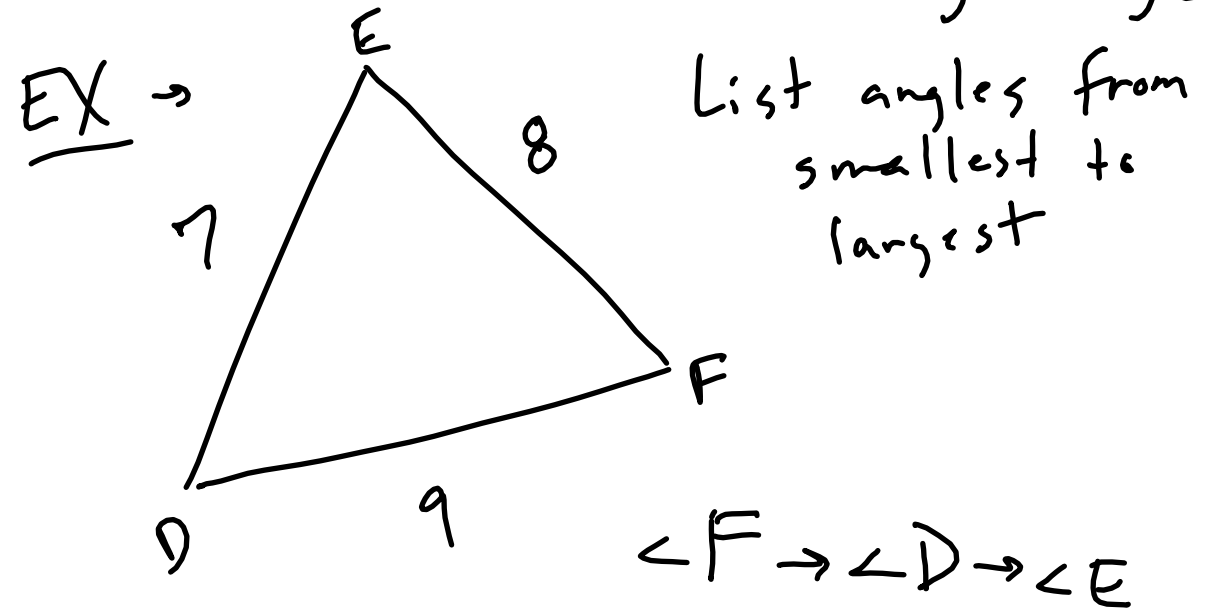
- One Triangle

↳ In a triangle, the longest side of a triangle is across from the largest angle

EX → List sides from largest to smallest



$\overline{AC} \rightarrow \overline{AB} \rightarrow \overline{BC}$



# - Triangle Inequality Theorem

↳ The sum of the lengths of any 2 sides of a triangle is greater than the length of the 3rd side

Ex → What possible range of values could 3rd side of triangle have?

1) 5, 6

$$x + 5 > 6$$

$$x > 1$$

$$5 + 6 > x$$

$$11 > x$$

$$\underset{\text{diff}}{1} < x < \underset{\text{sum}}{11}$$

2) 4, 7

$$\text{diff} < x < \text{sum}$$

$$3 < x < 11$$

3) 10, 12

$$\text{diff} < x < \text{sum}$$

$$2 < x < 22$$

4) 13, 13

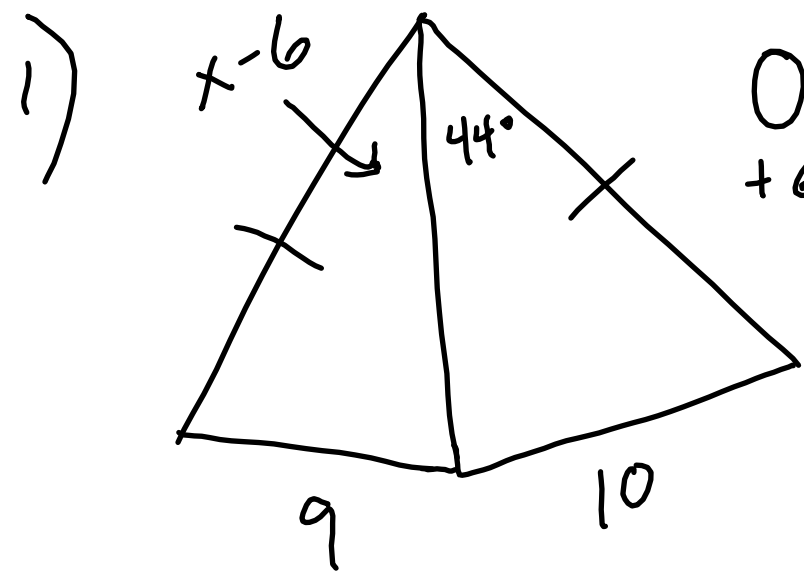
$$0 < x < 26$$

# - Two Triangles

## - Hinge Theorem & Converse

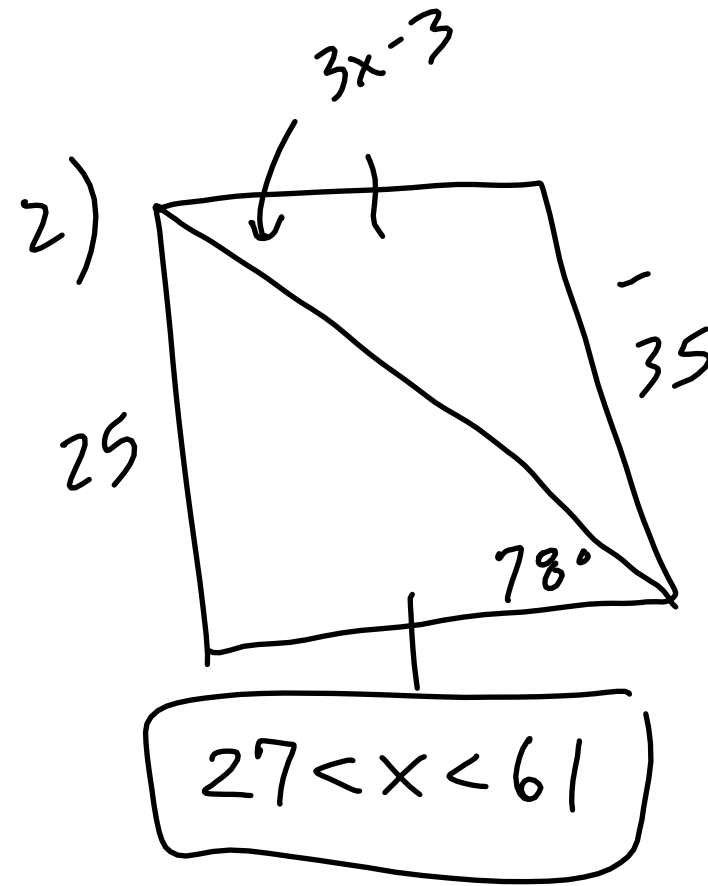
↳ If 2 triangles have 2 congruent sides, the larger included angle will be opposite the larger side & vice versa

EX → Find range of values for each variable



$$0 < x - 6 < 44$$

$$6 < x < 50$$



$$3x - 3 > 78$$

$$+3 \quad +3$$

$$x > \frac{81}{3}$$

$$x > 27$$

$$3x - 3 < 180$$

$$+3 \quad +3$$

$$x < \frac{183}{3}$$

$$x < 61$$

HW: p. 329 → 10-34 even

p. 336 → 6-18 even