Slide 1

69. Which sequence of transformations maps △ABC to △RST?

A. Reflect △ABC across the line x = -1. Then translate the result 1 unit down.
B. Reflect △ABC across the line x = -1. Then translate the result 5 units down.
C. Translate △ABC 6 units to the right. Then rotate the result 90° clockwise about the point (1, 1).
D. Translate △ABC 6 units to the right. Then rotate the result 90° counterclockwise about the point (1, 1).

Slide 2

Side – Angle Inequalities

- If one side of a triangle is longer than another side, then the angle opposite the longer side is larger than the angle opposite the smaller side.

Slide 3

Ex. 1 Write the measurements of the angles in order from least to greatest.

Step 1. Write the sides in order from least to greatest.

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

Step 2. Write the angles opposite those sides.

∠C < ∠A < ∠B

Slide 4

If one angle of a triangle is larger than another angle, then the side opposite the larger angle is longer than the side opposite the smaller angle.

Ex. 2 Write the measurements of the sides in order from least to greatest.

Step 1. List the angles in order from least to greatest.

∠X < ∠Z < ∠Y

Step 2. Write the sides opposite those angles.

$\overline{YZ} < \overline{XY} < \overline{ZX}$

Slide 5

Right Triangles

In a right triangle, the **hypotenuse** is the side with the greatest measure.

Slide 6

7-4 Triangle Inequality Theorem

add

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

Ex. 1 Determine if the three numbers can be measures of the sides of a triangle. If no, explain.

a. 13, 28, 19

$$\begin{array}{r} 13 \\ +19 \\ \hline \end{array}$$

Yes $28 < 32$ ✓

b. 9, 4, 4

No $\begin{array}{r} 4 \\ +4 \\ \hline 8 \end{array} < 9$

c. 9, 7, 2

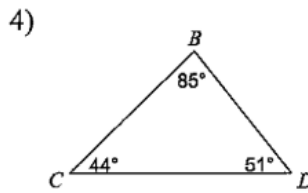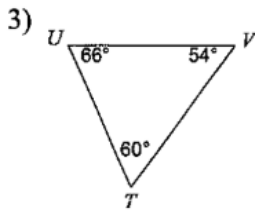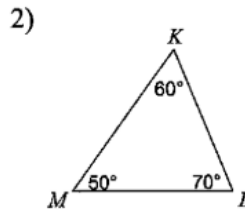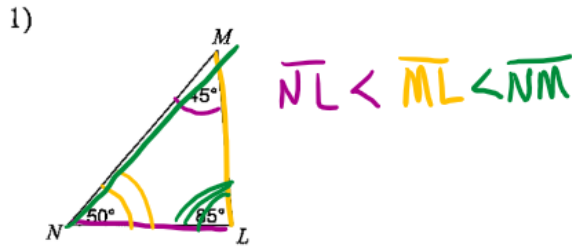No $\begin{array}{r} 7 \\ +2 \\ \hline 9 \end{array} = 9$

Ex. 2 If two sides of a triangle have the following measures, find the range of possible measures of the third side.

low $< x <$ high

a. 10, 7

low	high
$10-7=3$	$10+7=17$

$3 < x < 17$

b. 18, 11

low	high
$18-11=7$	$18+11=29$

$7 < X < 29$

7

8

Name_____ ID: 1

Triangle Inequality CW

Date_____ Period_____

Order the sides of each triangle from shortest to longest.

1)

$\overline{NL} < \overline{ML} < \overline{NM}$

2)

3)

4)

5)
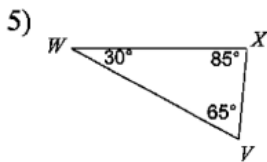
Order the angles in each triangle from smallest to largest.

6)

$\angle S, \angle T, \angle R$

7)

8)

9)

Made with Infinite Geometry.

39
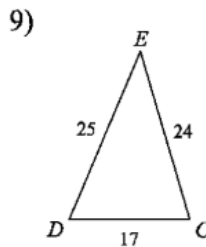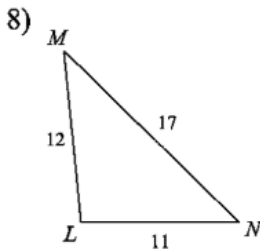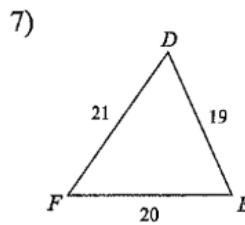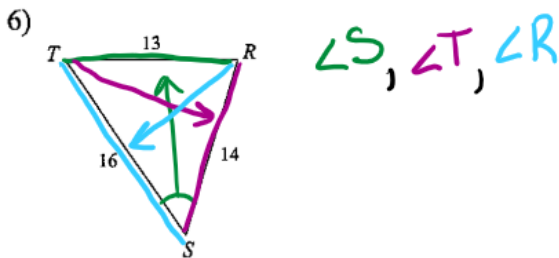
10)
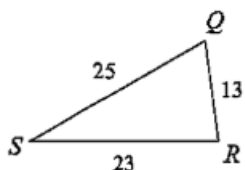
State if the three numbers can be the measures of the sides of a triangle.

11) 14, 6, 8 8
            $+6$
            $\overline{14} = 14$ No

12) 11, 8, 6

13) 8, 12, 6

14) 5, 12, 7

15) 6, 12, 6

16) 4, 9, 6

17) 3, 12, 12

18) 11, 9, 4

19) 12, 4, 8

20) 9, 16, 7

Two sides of a triangle have the following measures. Find the range of possible measures for the third side.

21) 12, 12

22) 7, 6

23) 11, 11

24) 7, 8

25) 12, 10