Thursday, November 8, 2012

Agenda:
- TISK & No MM
- Lesson 5-5: Triangle Inequalities
- Homework: 5-5 Worksheet

TISK Problems

1) Simplify: $\frac{32}{\sqrt{8}}$

2) Simplify: $\sqrt{1008}$

3) Find the slope of the line that passes through the points (5, -7) and (8, 2)

Homework Check

1) $\overline{BC}$
2) $\overline{MN}$
3) 10
4) 14
5) 9
6) 31
7) 6
8) Through AI ∠s, ∠4 ≅ ∠2, ∠8 ≅ ∠5, ∠12 ≅ ∠3, then through corresponding angles, ∠10 ≅ ∠7, ∠1 ≅ ∠5, ∠1 ≅ ∠11, ∠9 ≅ ∠6, ∠2 ≅ ∠10, ∠3 ≅ ∠6. Therefore, by the transitive property, ∠1 ≅ ∠5 ≅ ∠8 ≅ ∠11, ∠2 ≅ ∠4 ≅ ∠7 ≅ ∠10, ∠3 ≅ ∠6 ≅ ∠9 ≅ ∠12.

9) $D\left(2\frac{1}{2}, 0\right), E\left(7\frac{1}{2}, 2\right), F(5, 4)$
10) Work should be shown for slope and Distance Formula.
11) (2,8), (0, -2), and (8, 10)
12) (3, -1), (11, 3) and (7, 9)
13) 40
14) 31

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§5.5 Inequalities in One Triangle

- Theorems
  - 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 shorter side.
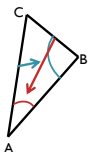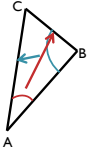
If $AC > BC$

Then $m\angle B > m\angle A$

§5.5 Inequalities in One Triangle

- Theorems
  - If one angle of a triangle is larger than another angle, then the side opposite the longer angle is larger than the side opposite the smaller angle.
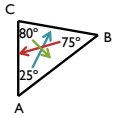
If $m\angle B > m\angle A$

Then $AC > BC$

Example

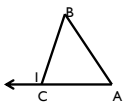- Write the measurements of the sides in order from least to greatest.

$BC < AC < AB$

Theorems

- Exterior Angle Inequality
  - The measure of an exterior angle of a triangle is greater than the measure of either of the two nonadjacent interior angles.
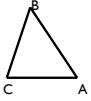
$m\angle 1 > m\angle B$

AND

$m\angle 1 > m\angle A$

Theorems

- Triangle Inequality
  - ◦ The sum of the lengths of any two sides of a triangle is greater than the length of the third side.

$$AB + BC > AC$$

AND

$$BC + CA > AB$$

AND

$$AB + CA > BC$$

Finding possible side lengths.

- A triangle has one side of 10 cm and another of 14 cm. Describe the possible lengths of the third side.

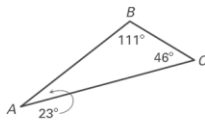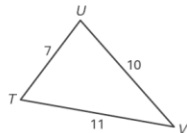|	
$AB + BC > AC$	$AB + AC > BC$
$10 + 14 > AC$	$10 + AC > 14$
$24 > AC$	$AC > 4$

$$4 < AC < 24$$

Extra Examples

Write the measures in the triangles in order from least to greatest.

a.

b.

Extra Examples

The figure below shows the side view of an Adirondack chair. In the figure, $\overline{JL} \cong \overline{LK}$ and $JK < JL$. What can you conclude about the angles in $\triangle JKL$?