2. Is it possible to construct a triangle with the given side lengths?

a.) 6, 7, 11

$6+7>11$ ✓

$7+11>6$ ✓

$11+6>7$ ✓

Yes.

b.) 6, 3, 9

$3+6>9$ ×

$6+9>3$ ✓

$9+3>6$ ✓

No.

c.) 30, 10, 14

$30+10>14$ ✓

$10+14>30$ ×

$14+30>10$ ✓

No.

3. A triangle has one side length of 14in and another length of 10in. Describe the possible lengths of the third side.

$14-10=4$ $\qquad$ $14+10=24$

$4\text{in} < x < 24\text{in}$

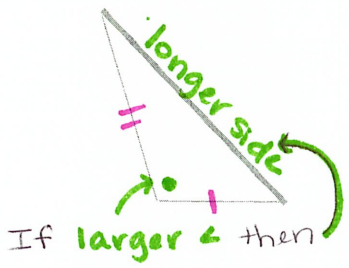
4. A triangle has one side length of 23 meters and another length of 17 meters. Describe the possible lengths of the third side.

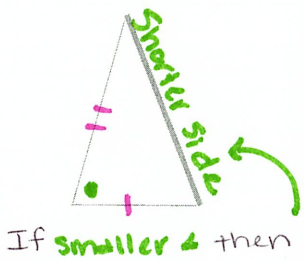
$23-17=6$ $\qquad$ $23+17=40$

$6\text{in} < x < 40\text{in}$

Hinge Theorem (Theorem 5.13):

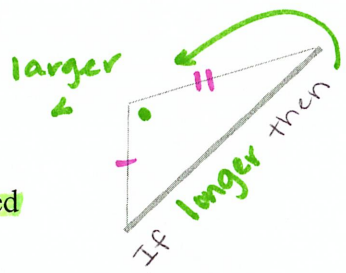
If two sides of one triangle are congruent to two sides of another triangle, and the included angle of the first is larger than the included angle of the second, then the third side of the first is longer than the third side of the second.

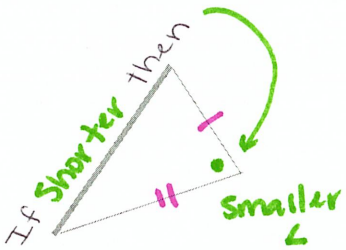




Converse of the Hinge Theorem (Theorem 5.14):

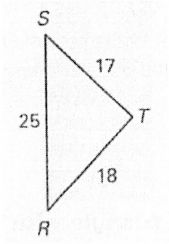
If two sides of one triangle are congruent to two sides of another triangle, and third side of the first is longer than the third side of the second, then the included angle of the first is larger than the included angle of the second.





5. List the sides and the angles in order from smallest to largest.

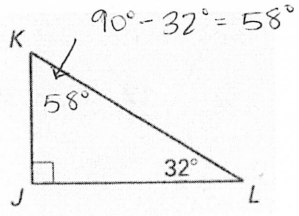
a.)



$\overline{ST}, \overline{TR}, \overline{RS}$

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

b.)

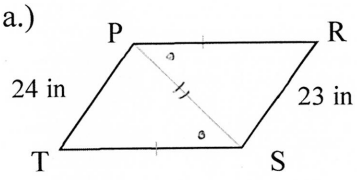


$\angle L, \angle K, \angle J$

$\overline{JK}, \overline{LJ}, \overline{KL}$

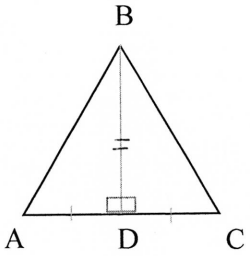
6. Complete the statement with a <, >, = .

a.)



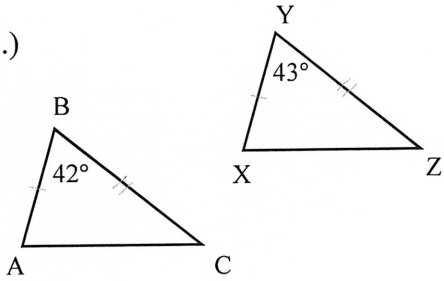
a.) $\angle PST$ ___>___ $\angle SPR$

b.)



b.) $\overline{AB}$ ___=___ $\overline{CB}$

c.)



c.) $\overline{AC}$ ___<___ $\overline{XZ}$