

Geometry Honors – Chapter 6 Review

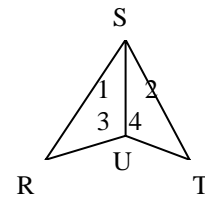
Things to Study

- p.222 1-12
- p.231 1-8
- p. 236 8-13
- Review how to do indirect proofs
- Review how the sum of the internal/external angle of a polygon

Sample Problems:

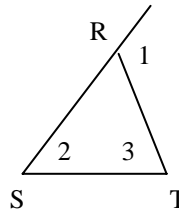
1. Is it possible to have a triangle with lengths 4, 6, and 10? Explain.
2. If two sides of a triangle are 15, & 20 what are the possible lengths for the third side?

3. a) If  $RS = ST$  and  $m\angle 1 > m\angle 2$ , then  $RU$  \_\_\_  $TU$ .
- b) If  $RS = ST$  and  $RU = TU$ , then  $m\angle 3$  \_\_\_  $m\angle 4$ .
- c) If  $RU = TU$  and  $ST < RS$ , then  $m\angle 3$  \_\_\_  $m\angle 4$ .

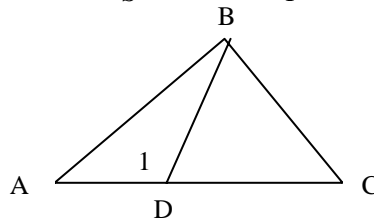


4. In  $\triangle KLM$ , if  $KL = 9$ ,  $LM = 12$  and  $MK = 13$ , what is the largest angle?
5. Write an indirect proof in paragraph form.

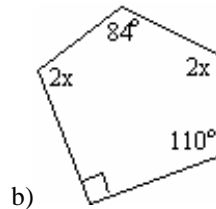
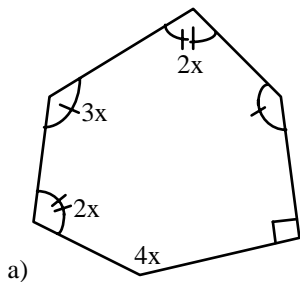
Given:  $m\angle 2 = \frac{1}{3} m\angle 1$   
 Prove:  $RS \neq RT$



6. Given:  $\overline{DC} \cong \overline{BC}$   
 Prove:  $m\angle 1 > m\angle BDC$



7. Solve for x.



Answers:

1. NO

2.  $5 < x < 35$

3. a)  $>$  b)  $=$  c)  $>$

4. angle L

5. Assume that  $RS = RT$ . Then angle 2 is congruent to angle 3 by the isosceles triangle theorem and  $m\angle 1 = m\angle 2 + m\angle 3$ . So  $m\angle 1 = 2(m\angle 2)$  and  $m\angle 2 = \frac{1}{2} m\angle 1$ . This contradicts the given. Therefore our assumption is false and  $RS$  does not equal  $RT$ .

6. 1) -----

2)  $m\angle 1 > m\angle DBC$

3)  $\angle BDC \cong \angle DBC$

4)  $m\angle 1 > m\angle BDC$

1) Given

2) Exterior angle of a triangle is greater than either remote interior

3) Isosceles triangle theorem

4) Substitution

7. a)  $x = 45$

b)  $x = 64$