5.5 Geometry - Second Edition, Inequalities in Triangles, Review Answers

1. AB, BC, AC
2. BC, AB, AC
3. AC, BC, AB
4. $\angle B, \angle A, \angle C$
5. $\angle B, \angle C, \angle A$
6. $\angle C, \angle B, \angle A$
7. No, $6 + 6 < 13$
8. No, $1 + 2 = 3$
9. Yes
10. Yes
11. No, $23 + 56 < 85$
12. Yes
13. $1 < 3^{rd}$ side < 17
14. $11 < 3^{rd}$ side < 19
15. $12 < 3^{rd}$ side < 52
16. Both legs must be longer than 12

17. $0 < x < 10.\overline{3}$
18. $m\angle 1 > m\angle 2$ because $7 > 6$
19. IJ, IG, GJ, GH, JH
20. $m\angle 1 < m\angle 2, m\angle 3 > m\angle 4$
21. $a = b$
22. $a > b$
23. $a < b$
24. $d < a < e < c < b$
25. $a = b < d < e < c$
26. $x < 18$
27. $x > 3$
28. $m\angle C < m\angle B < m\angle A$ because $\overline{AB} < \overline{AC}$
29. SAS theorem doesn't apply here since the angle is not between the pair of congruent sides.
30. Since the median $\overline{AB}$ bisects the side $\overline{CT}, \overline{CB} \cong \overline{BT}$. By the reflexive property, $\overline{AB} \cong \overline{AB}$. If $\overline{CA} > \overline{AT}$, then we can use the SSS Inequality Theorem to conclude that $m\angle ABT < m\angle ABC$. Since $m\angle ABT$ and $m\angle ABC$ are also a linear pair and must be supplementary, the smaller angle must be acute. Hence, $\angle ABT$ is acute.