10. Write the letters (a)–(d) in an order that completes an indirect proof of the statement: If $n^2 + 6 = 32$, then $n \neq 5$. **6–3**

(a) But this contradicts the fact that $n^2 + 6 = 32$.
(b) Our temporary assumption must be false, and it follows that $n \neq 5$.
(c) Assume temporarily that $n = 5$.
(d) Then $n^2 + 6 = 31$.

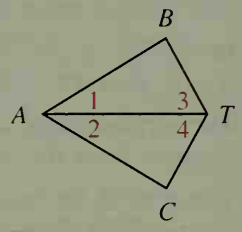
11. In $\triangle TOP$, if $OT > OP$, then $m\angle P >$ ___?___. **6–4**

12. In $\triangle RED$, if $m\angle D < m\angle E$, then $RD >$ ___?___.

13. Points X and Y are in plane M. If $\overline{PX} \perp$ plane M, then PX ___?___ PY.

14. Two sides of a triangle have lengths 6 and 8. The length of the third side must be greater than ___?___ and less than ___?___.

Complete each statement by writing $<$, $=$, or $>$.



6–5

15. If $\overline{AB} \cong \overline{AC}$ and $m\angle 1 > m\angle 2$, then BT ___?___ CT.

16. If $\overline{TB} \cong \overline{TC}$ and $AB < AC$, then $m\angle 3$ ___?___ $m\angle 4$.

17. If $\angle 1 \cong \angle 2$ and $\angle 3 \cong \angle 4$, then AB ___?___ AC.

18. If $\overline{TB} \cong \overline{TC}$ and $m\angle 3 > m\angle 4$, then AB ___?___ AC.

Chapter Test

Complete each statement by writing $<$, $=$, or $>$.

1. If $x > y$ and $y = z$, then x ___?___ z.

2. If $a > b$, and $c < b$, then c ___?___ a.

3. If $s = t + 4$, then s ___?___ t.

4. If $e + 5 = f + 4$, then e ___?___ f.

5. Write (a) the inverse and (b) the contrapositive of

"If point P is on $\overline{AB}$, then $AB > AP$."

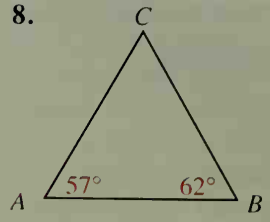
6. Pair each statement below with the given statement above and tell what conclusion, *if any*, must follow.

a. P is not on $\overline{AB}$. **b.** P is on $\overline{AB}$. **c.** $AB \leq AP$ **d.** $AB > AP$

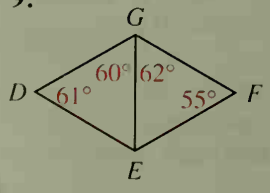
7. If the lengths of the sides of a triangle are x, 15, and 21, then x must be greater than ___?___ and less than ___?___.

In Exercises 8–10 the diagrams are not drawn to scale. If each diagram were drawn accurately, which segment shown would be the shortest?

8.



9.



10.