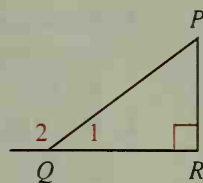## Chapter 6

Indicate the best answer by writing the appropriate letter.

1. Which of the following statements *must* be false?
   a. $QR + PR > PQ$
   b. $m\angle 2 > m\angle P + m\angle R$
   c. $\frac{1}{2}m\angle 2 > \frac{1}{2}m\angle 1$
   d. $PQ > PR$

Ex. 1

2. You don't need a figure to do this exercise. Given that $m\angle A = m\angle B$, you want to prove that $m\angle 3 = m\angle 4$. To write an an indirect proof, you should begin by temporarily assuming which statement?
   a. $m\angle A \neq m\angle B$
   b. $m\angle A = m\angle B$
   c. $m\angle 3 = m\angle 4$
   d. $m\angle 3 \neq m\angle 4$

3. In quadrilateral $MNPQ$, $MN = 5$, $NP = 6$, $PQ = 7$, and $QM = 9$. Which of the following might possibly be the length of $\overline{NQ}$?
   a. 12.5
   b. 14
   c. 2
   d. all of these

4. Given: (1) If A is white, then B is red.
          (2) B is not red.
   Which of the following *must* be true?
   a. B is white.
   b. B is not white.
   c. A is not white.
   d. A is red.

5. If a conditional is known to be true, then which of the following *must* also be true?
   a. its converse
   b. its contrapositive
   c. its inverse
   d. none of these

6. In $\triangle DEF$, $m\angle D = 50$, and an exterior angle with vertex F has measure 120. What is the longest side of $\triangle DEF$?
   a. $\overline{DE}$
   b. $\overline{EF}$
   c. $\overline{DF}$
   d. unknown

7. In $\triangle MNP$, $MN = 8$ and $NP = 10$. Which of these *must* be true?
   a. $MP > 2$
   b. $MP < 2$
   c. $MP > 10$
   d. $MP < 10$

8. What is the inverse of "If $x = 3$, then $x > 0$"?
   a. If $x > 0$, then $x = 3$.
   b. If $x \neq 3$, then $x \leq 0$.
   c. If $x \leq 0$, then $x \neq 3$.
   d. If $x = 3$, then $x \leq 0$.

9. If $RT = ST$ and $RX > SX$, what can you conclude?
   a. $m\angle 1 > m\angle 2$
   b. $m\angle XRS > m\angle XSR$
   c. $m\angle 3 = m\angle 4$
   d. $m\angle 5 > m\angle 6$

10. If $RX = SX$ and $m\angle 5 > m\angle 6$, what can you conclude?
    a. $m\angle TRS < m\angle TSR$
    b. $RT < ST$
    c. $m\angle 1 > m\angle 2$
    d. $m\angle 3 > m\angle 4$

11. Which of the following is an important part of an indirect proof?
    a. Proving that the hypothesis *cannot* be deduced from the conclusion
    b. Proving that the temporary assumption must be true
    c. Assuming temporarily that the conclusion must be true
    d. Finding a contradiction of a known fact