Name

Class

Date

5.1 Hinge Theorem

**Write an inequality relating the given side lengths. If there is not enough information to reach a conclusion, write *no conclusion.***

******1.** *ST* and *MN* **2.** *BA* and *BC* **3.** *CD* and *CF*

**4.** A crocodile opens his jaws at a 30 angle. He closes his jaws, then opens them again at a 36 angle. In which case is the distance between the tip of his upper jaw and the tip of his lower jaw greater? Explain.

**5.** At which time is the distance between the tip of the hour hand and the tip of the minute hand greater, 2:20 or 2:25?

**Find the range of possible values for each variable.**

**6. 7. 8.**

**9.** In the triangles at the right, *AB* = *DC* and *m*∠*ABC* < *m*∠*DCB.* Explain why *AC* < *BD.*

**Copy and complete with >** **or <. Explain your reasoning.**

**10.** *m*∠*POQ  m*∠*MON*

**11.** *MN * *PQ*

**12.** *MP * *OP*

**13.** Jogger A and Jogger B start at the same point. Jogger A travels 0.9 mi due east, then turns 120° clockwise, then travels another 3 mi. Jogger B travels 0.9 mi due west, then turns 115° counterclockwise, then travels another 3 mi. Do the joggers end in the same place? Explain.

**14.** The legs of an isosceles triangle with a 65° vertex angle
are congruent with the sides of an equilateral triangle.
Which triangle has a greater perimeter? How do you know?

**Write an inequality relating the given angle measures. If there is not enough information to reach a conclusion, write *no conclusion.***

**15.** *m*∠*A* and *m*∠*F* **16.** *m*∠*L* and *m*∠*R* **17.** *m*∠*MLN* and *m*∠*ONL*

