

LESSON

Problem Solving

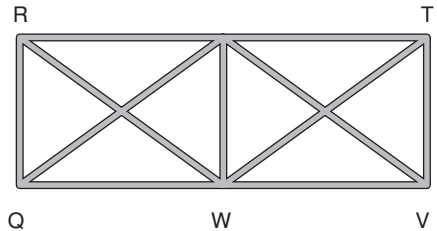
4-3 Congruent Triangles

Use the diagram of the fence for Exercises 1 and 2.

$\triangle RQW \cong \triangle TVW$

1. If $m\angle RWQ = 36^\circ$ and $m\angle TWV = (2x + 5)^\circ$, what is the value of x ?

2. If $RW = (3y - 1)$ feet and $TW = (y + 5)$ feet, what is the length of \overline{RW} ?

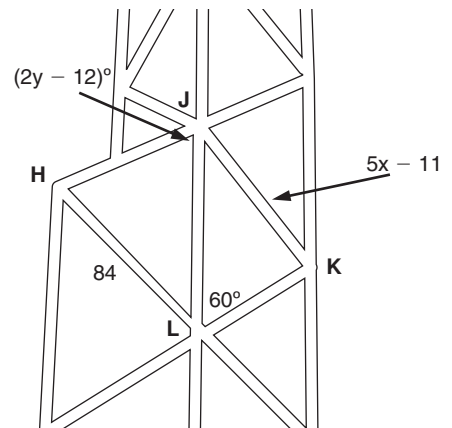


Use the diagram of a section of the Bank of China Tower for Exercises 3 and 4.

$\triangle JKL \cong \triangle LHJ$

3. What is the value of x ?

4. Find $m\angle JHL$.



Choose the best answer.

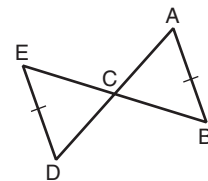
5. Chairs with triangular seats were popular in the Middle Ages. Suppose a chair has a seat that is an isosceles triangle and the congruent sides measure $1\frac{1}{2}$ feet. A second chair has a triangular seat with a perimeter of $5\frac{1}{10}$ feet, and it is congruent to the first seat. What is a side length of the second seat?

- A $1\frac{4}{5}$ ft C 3 ft
 B $2\frac{1}{10}$ ft D $3\frac{3}{5}$ ft

Use the diagram for Exercises 6 and 7.

6. C is the midpoint of \overline{EB} and \overline{AD} . What additional information would allow you to prove $\triangle ABC \cong \triangle DEC$ by the definition of congruent triangles?

- F $\overline{EB} \cong \overline{AD}$ H $\angle ECD \cong \angle ACB$
 G $\overline{DE} \cong \overline{AB}$ J $\angle A \cong \angle D, \angle B \cong \angle E$



7. If $\triangle ABC \cong \triangle DEC$, $ED = 4y + 2$, and $AB = 6y - 4$, what is the length of \overline{AB} ?

- A 3 C 14
 B 12 D 18