

### Exercise Set 4.1: Special Right Triangles and Trigonometric Ratios

Answer the following.

1. If two sides of a triangle are congruent, then the \_\_\_\_\_ opposite those sides are also congruent.
2. If two angles of a triangle are congruent, then the \_\_\_\_\_ opposite those angles are also congruent.
3. In any triangle, the sum of the measures of its angles is \_\_\_\_\_ degrees.
4. In an isosceles right triangle, each acute angle measures \_\_\_\_\_ degrees.
5. Fill in each missing blank with one of the following: *smallest, largest*  
In any triangle, the longest side is opposite the \_\_\_\_\_ angle, and the shortest side is opposite the \_\_\_\_\_ angle.
6. Fill in each missing blank with one of the following:  $30^\circ$ ,  $60^\circ$ ,  $90^\circ$   
In a  $30^\circ$ - $60^\circ$ - $90^\circ$  triangle, the hypotenuse is opposite the \_\_\_\_\_ angle, the shorter leg is opposite the \_\_\_\_\_ angle, and the longer leg is opposite the \_\_\_\_\_ angle.

For each of the following,

- (a) Use the theorem for  $45^\circ$ - $45^\circ$ - $90^\circ$  triangles to find  $x$ .
- (b) Use the Pythagorean Theorem to verify the result obtained in part (a).

