Name _____

Period _____   Date _____

**I. Find the value of each variable.   Write your answer in simplest radical form.**

1.

10

b

12

60°   45°

a

2.

4

30° 30° 30° 30°

m
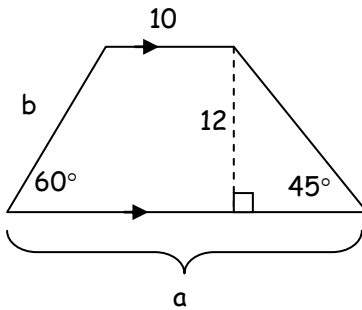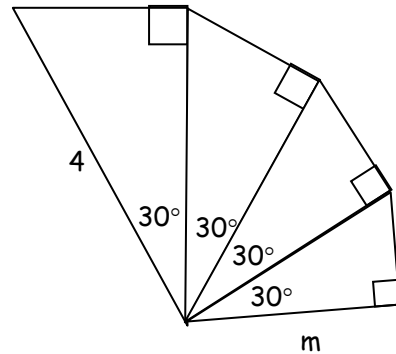
II. True or False: Decide if the statements are true or false. **If false, write a corrected statement.**

3.   Every isosceles triangle is also a right triangle.

4. The diagonal of a square separates it into two isosceles right triangles.

5. The legs of a 45-45-90 right triangle are congruent.

6. The hypotenuse of a 30-60-90 triangle is twice the length of the shorter leg.

7. The hypotenuse of an isosceles right triangle is $\sqrt{3}$ times the length of either leg.

8. In a 30-60-90 right triangle the shorter leg is opposite the 60° angle.
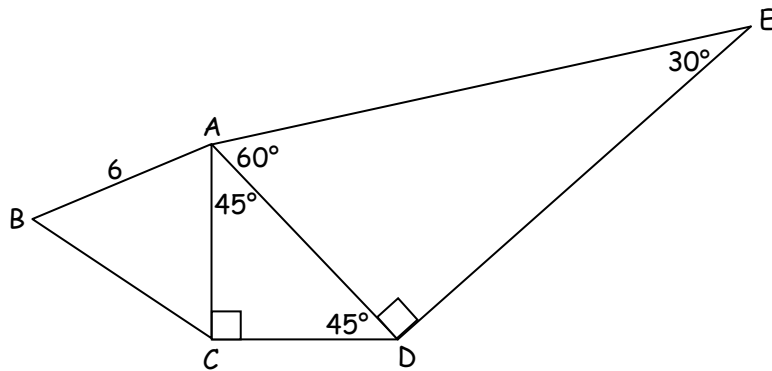
III. Make a drawing for each problem and show all work. Leave answers as simplified radicals.

9. Find the perimeter of a square if a diagonal length is 12 feet.

10. Calculate the area of the composite figure:

12 cm

12 cm
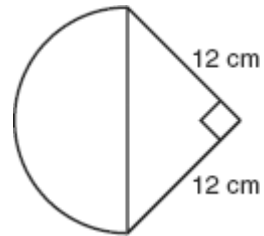
11. In the figure below, if $\overline{AB}$ in equilateral triangle ABC has a length of 6, what is the length of $\overline{AE}$?

E

30°

A

60°

6

45°

B

45°

C

D

12. Calculate the area of the triangle:

60°

c

a

30°

8 mm