Day 5 - Special Right Triangles Review Homework   Name_____ **Key** _____

For numbers 1-10, find the lengths of the missing sides of the triangle. Leave simplest radical form.

1)

$11\sqrt{2}$
$s\sqrt{2}$

s 11

A
45°
45°
B   11 cm   C
s

2)

$16.4\sqrt{2}$
$s\sqrt{2}$

16.4 s

D
E
F   16.4
s

3)

2
$2s$

$s\sqrt{3}$
$\sqrt{3}$

Z
30°   60°   Y
1 cm s
X

4)

$10\sqrt{3}$
$s\sqrt{3}$

s 10 in
$2s$ 20

C   30°   U
T

5)

$6\sqrt{3}$
$s\sqrt{3}$

6 s

C   30°   U
60°   12 in $=2s$
T

6)

$.7\sqrt{3}$
$s\sqrt{3}$

$.7$ s

T   30°   R
1.4 cm $=2s$
O

7)

$6\sqrt{3}$
$2s$

$3\sqrt{3}$ s 60°

C
Z   9 m $=s\sqrt{3}$ T

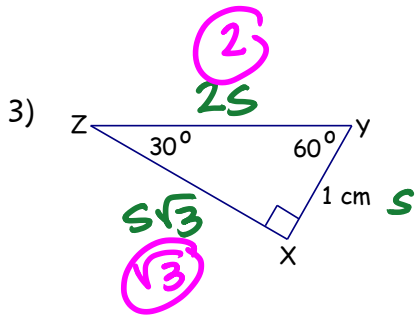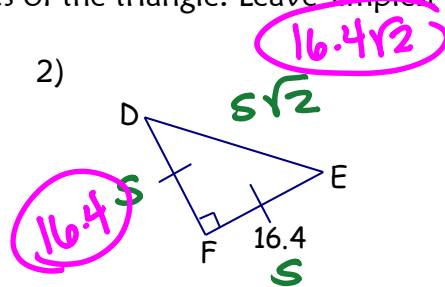$\dfrac{s\sqrt{3}}{\sqrt{3}} = \dfrac{9}{\sqrt{3}} \cdot \dfrac{\sqrt{3}}{\sqrt{3}}$

$s = \dfrac{9\sqrt{3}}{3}$

$s = 3\sqrt{3}$

8)

$\dfrac{4\sqrt{3}}{3}$
s

$s\sqrt{3}$ 4 cm $2s$
30° $\dfrac{8\sqrt{3}}{3}$

Y   T
Z

$\dfrac{s\sqrt{3}}{\sqrt{3}} = 4\dfrac{\sqrt{3}}{\sqrt{3}} \cdot \dfrac{\sqrt{3}}{\sqrt{3}}$

$s = \dfrac{4\sqrt{3}}{3}$

9)

$s\sqrt{2}$ 6 ft
s
$3\sqrt{2}$

A
C   B
s
$3\sqrt{2}$

$\dfrac{s\sqrt{2}}{\sqrt{2}} = \dfrac{6}{\sqrt{2}} \cdot \dfrac{\sqrt{2}}{\sqrt{2}}$

$s = \dfrac{6\sqrt{2}}{2}$

$s = 3\sqrt{2}$

10)

s 11
45°

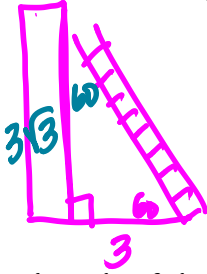$s\sqrt{2}$ $11\sqrt{2}$

s 11

D
O
G
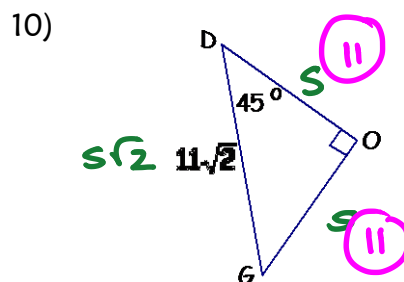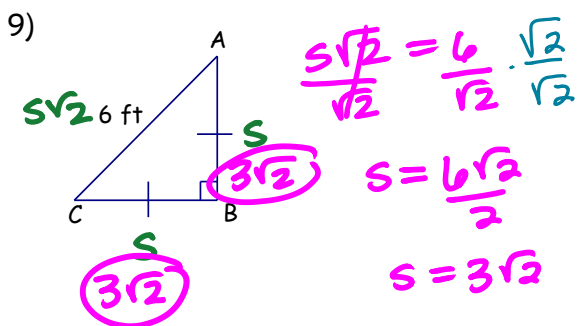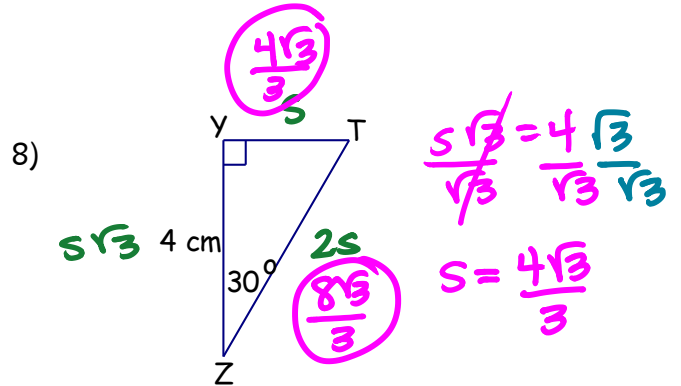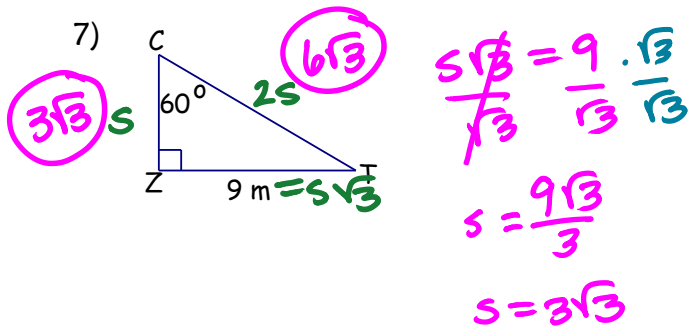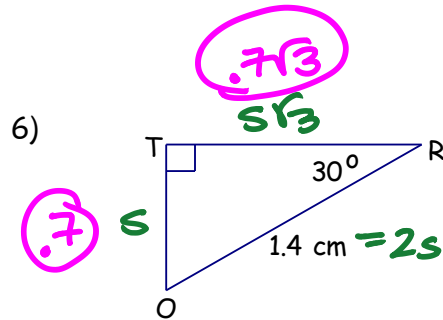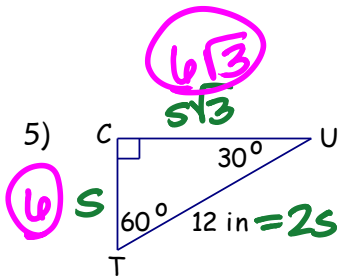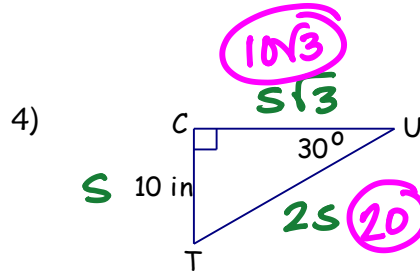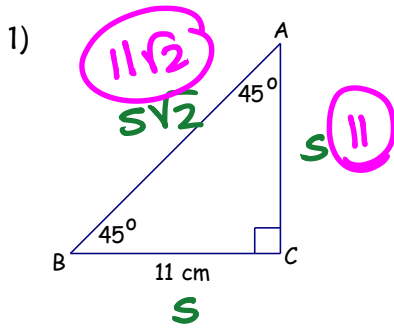
11) The length of the hypotenuse of a 30-60-90 triangle is 20. What is the length of the shorter leg?
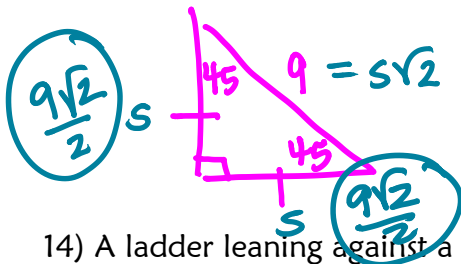
$20 = 2s$

10

10 s
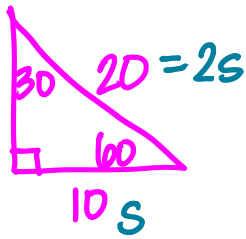
12) A ladder leaning against a wall makes a 60 angle with the ground. The base of the ladder is 3 m from the building. How high above the ground is the top of the ladder?
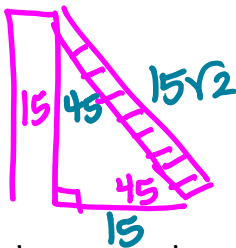
$3\sqrt{3}$ m or ≈ 5.2 m

$3\sqrt{3}$ 3

13) The length of the hypotenuse of an isosceles right triangle is 9. What is the length of the legs?

$\dfrac{9\sqrt{2}}{2}$ s

$9 = s\sqrt{2}$

$\dfrac{9\sqrt{2}}{2}$

$s\sqrt{2} = 9$

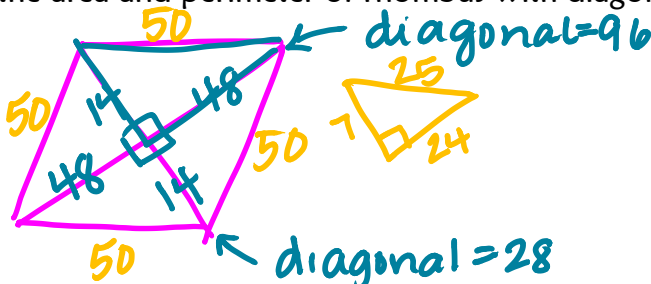$s = \dfrac{9\sqrt{2}}{2}$

14) A ladder leaning against a wall makes a 45 degree angle with the ground. If the ladder reaches the wall at 15 feet, then how long is the ladder?

15 45 $15\sqrt{2}$ 45   15

$15\sqrt{2}$ ft

or ≈ 21.2 ft

15) Find the area and perimeter of rhombus with diagonals of 28 and 96.

50 ← diagonal=96
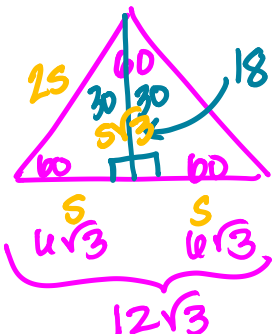
50 14 48   25

48 50 14   50   24

50 ← diagonal = 28

$P = 4(50)$
$P = 200$

$A = 4 \Delta's \left(\dfrac{b \times h}{2}\right)$

$= 4\left(\dfrac{48 \cdot 14}{2}\right)$

$= 1,344$

16) The altitude of an equilateral triangle is 18. Find the area of the triangle.

2s 60   18
30 30
$s\sqrt{3}$
60   60

s   s
$4\sqrt{3}$ $6\sqrt{3}$

$12\sqrt{3}$

$s\sqrt{3} = 18$
$s = 6\sqrt{3}$

$A = \dfrac{b \cdot h}{2}$

$= \dfrac{12\sqrt{3} \cdot 18}{2}$

$= 108\sqrt{3}$

Study 5.7 and 5.8 for tomorrow's quiz! ☺