Geometry ~~Subject~~
8.3 Practice Examples
Special Right Triangles

Key

1. 12 d $30°$ c $6\sqrt{3}$ 6

2. b $6\sqrt{3}$ 12 $60°$ a 6

3. $5\sqrt{3}$ 5 $60°$ a 10

4. 30 $10\sqrt{3}$ e $60°$ f $20\sqrt{3}$

5. $14\sqrt{3}$ d $30°$ 21 $7\sqrt{3}$ c

6. b $10\sqrt{3}$ 15 $60°$ a $5\sqrt{3}$

7. a $9\sqrt{2}$ $45°$ 9 g

8. $3\sqrt{2}$ x 3 $45°$ y 3

9. x y 12 $6\sqrt{2}$ $6\sqrt{2}$

10. 6 $45°$ $3\sqrt{2}$ v u $3\sqrt{2}$

11. $5\sqrt{2}$ y $45°$ $5\sqrt{2}$ x 10

12. Find x, y, and z.
z $2\sqrt{6}$
8 $4\sqrt{3}$ 45
60 x 4
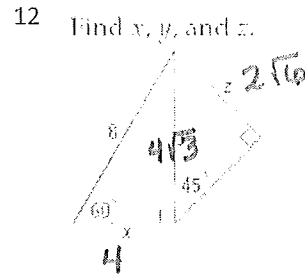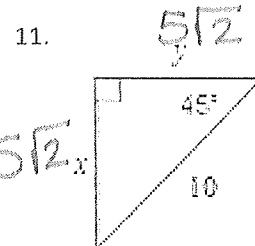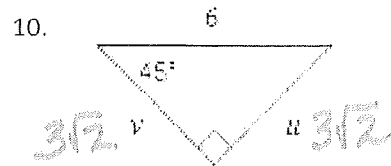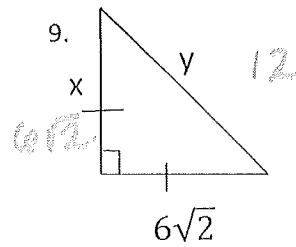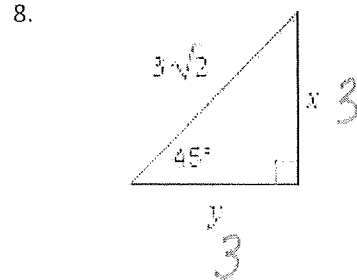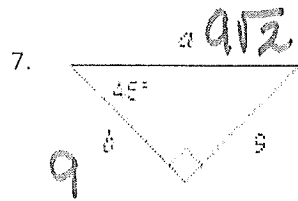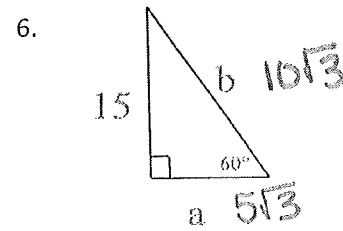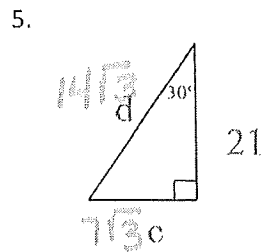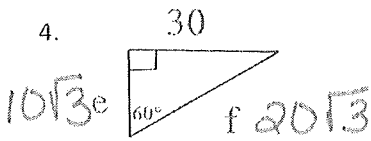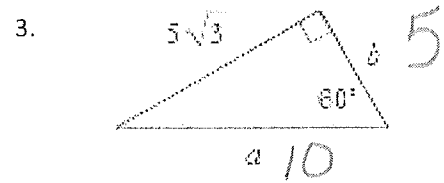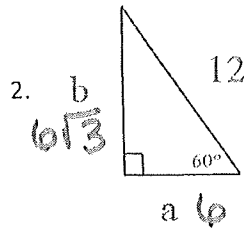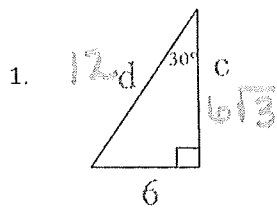
13. Find x, y, z, and the perimeter of trapezoid $ABCD$.

$6 + 8 + 4\sqrt{3} + 6 + 4 + 4\sqrt{2}$

$\boxed{24 + 4\sqrt{3} + 4\sqrt{2}}$

D E C
4 4 $4\sqrt{2}$
30 $45°$ B
$4\sqrt{3}$ 6 4
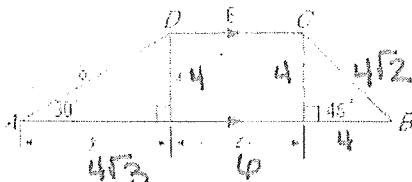
14. Use triangle ABC. Find all missing variables. ON TEST!

a. $a = 6\sqrt{3}$
$b = 18$
$c = 12\sqrt{3}$
$x = 3\sqrt{3}$
$y = 9\sqrt{3}$

b. $y = 15\sqrt{3}$
$a = 10\sqrt{3}$
$b = 30$
$x = 5\sqrt{3}$
$c = 20\sqrt{3}$

c. $b = 18$
$a = 6\sqrt{3}$
$c = 12\sqrt{3}$
$x = 3\sqrt{3}$
$y = 9\sqrt{3}$

15.

2

√3

2√3

1.5

4   30°   30°

30° 1.5√3

30°

30°

.75√3

x

.75√3 × √3

$X = 2.25$

16.

A   12   B

10   5√2   5√2

45°   60°

C   5√2   12   D

x

$\frac{5\sqrt{6}}{3} = X$

17.

45°

$\frac{16\sqrt{3}}{3}$ d

e $\frac{(16\sqrt{3})\sqrt{2}}{3}$

$= \frac{16\sqrt{6}}{3}$

$\frac{16\sqrt{3}}{3}$ c   45°

30°   60°

4√2   a   8

45°   b $\frac{8\sqrt{3}}{3}$

$a = (4\sqrt{2})\sqrt{2}$

$a = 8$

$b = \frac{8\sqrt{3}}{3}$

$C = \frac{16\sqrt{3}}{3}$
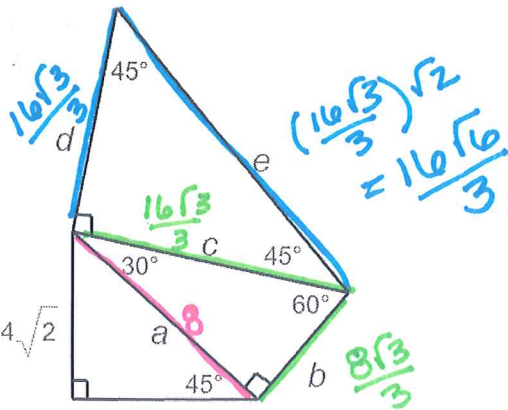
$d = \frac{16\sqrt{3}}{3}$

$c = \frac{16\sqrt{6}}{3}$

18.

24   x   24

12   24
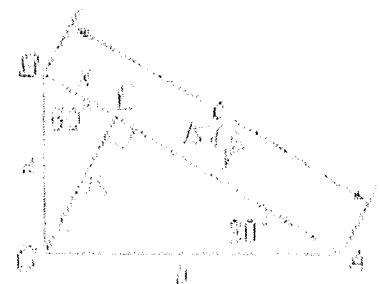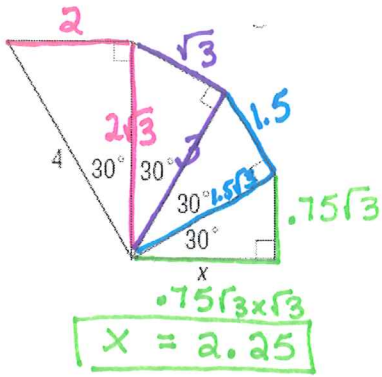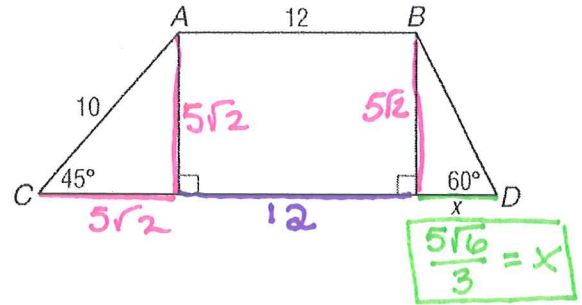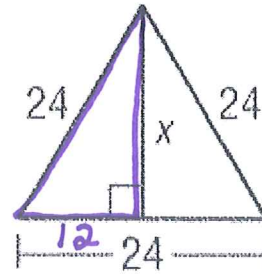
could do pyth. thm
or 30-60-90 b/c
12 is ½ of 24

$X = 12\sqrt{3}$

19.

17

a

15   b

x

8

9   3.5

$8^2 + a^2 = 17^2$

$a = 15$
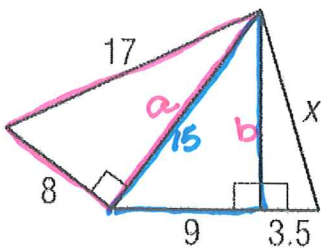
Do pyth. thm 3
times :)
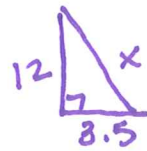
12   x $12^2 + 3.5^2 = x^2$

8.5 $X = 12.5$
Con't simplify
Radical b/c
already a
decimal.

$9.2^2 + b^2 = 15^2$

$b^2 = 144$

$b = 12$

20.

60°

8√3   x

30°

y
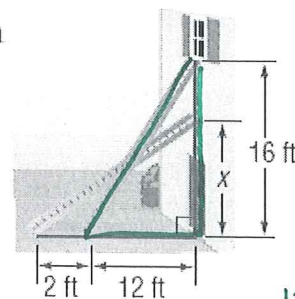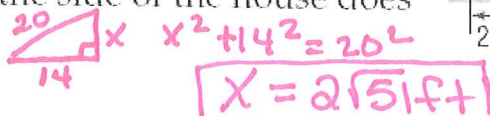
8√3   30°

$\frac{(8\sqrt{3})\sqrt{3}}{}$

$Y = 24$

$x = 12$

12   30°

24
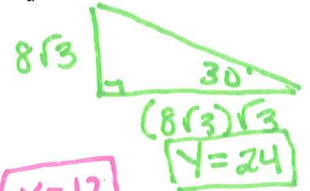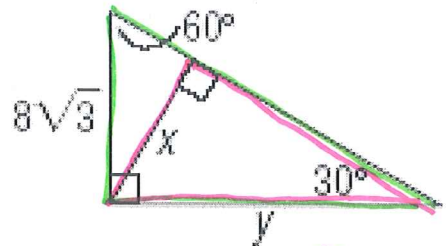
21. PAINTING A painter sets a ladder up to reach the bottom
of a second-story window 16 feet above the ground.
The base of the ladder is 12 feet from the house. While
the painter mixes the paint, a neighbor's dog bumps
the ladder, which moves the base 2 feet farther away
from the house. How far up the side of the house does
the ladder reach?

20   x $x^2 + 14^2 = 20^2$

14    $X = 2\sqrt{51} ft$

16 ft

x

2 ft   12 ft

Find ladder
first

L   16

12

$12^2 + 16^2 = L^2$

$L = 20 ft$