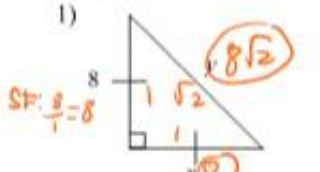
8.3 Worksheet

***Do all work on your own paper!**

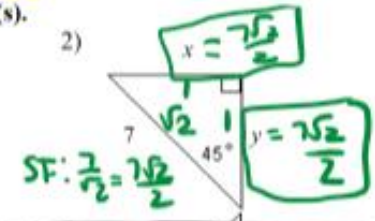
For #1 – 15, find the variable(s).

Solutions

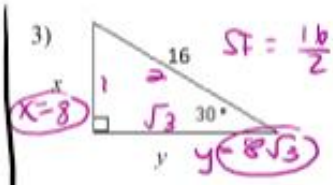
1)



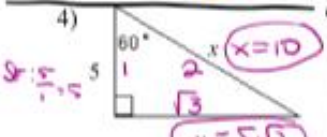
2)



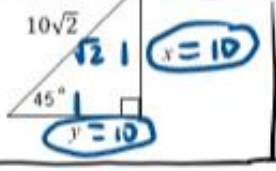
3)



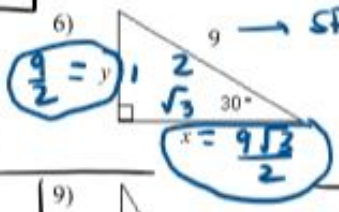
4)



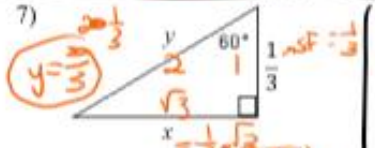
5)



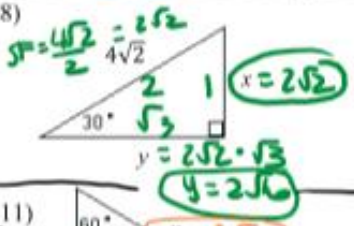
6)



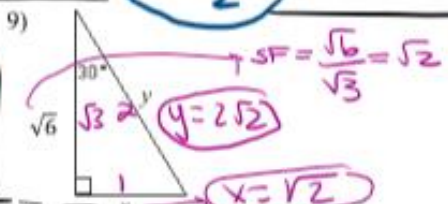
7)



8)

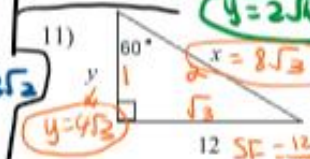


9)

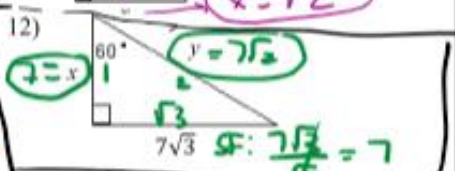


10)

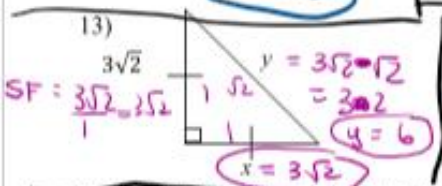
11)



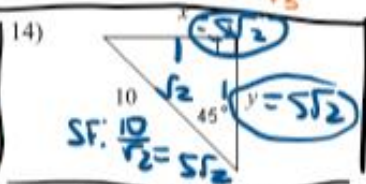
12)



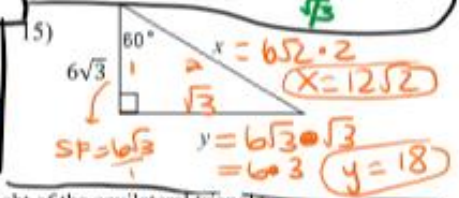
13)



14)



15)



16) An equilateral triangle has one side of length 14. Find the length of the height of the equilateral triangle.

h = 7√3

17) A square has area equal to 25 cm^2. Find the length of the diagonal.

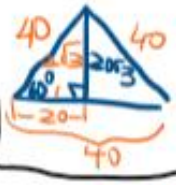
17) A = side^2

√25 = √side^2

5 = side

diag = 5√2

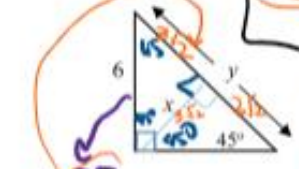
18) An equilateral triangle has a height of 20√3. Find the perimeter of the triangle.



Per = 40 · 3

120

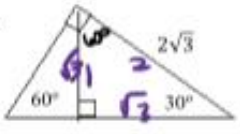
19) Find x and y.



y = 3√2 + 3√2

y = 6√2

20) Find x and y.

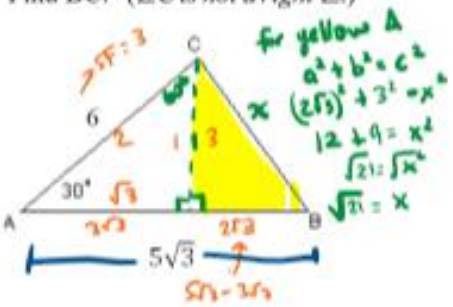


√3 · √3

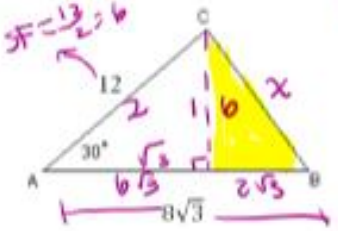
x = 3

y = 1

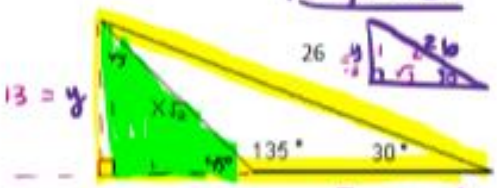
21) Find BC. ($\angle C$ *is not a right* $\angle$.)



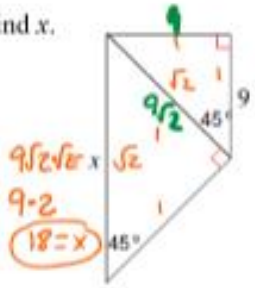
22) Find BC. ($\angle C$ *is not a right* $\angle$.)



23) Find x.



24) Find x.



25) Find x.

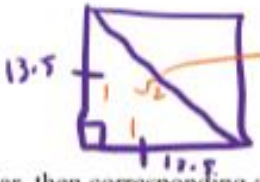
26) The perimeter of a square is 54 *cm*. Find the length of a diagonal, rounding to the nearest tenth.

A. 10.4 *cm*

C. 19.1 *cm*

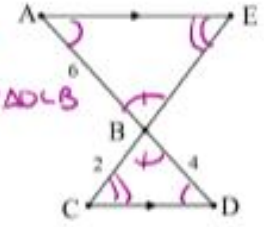
B. 13.5 *cm*

D. 22.4 *cm*



27) Fill in the blanks to make the statement true: If two triangles are similar, then corresponding angles are _____ and corresponding sides are _____.

For #28 – 30, use the triangles shown.



28) Are the triangles similar? If so, by what theorem or postulate?

29) Write a similarity statement, or write "none" if they are not similar.

30) Find the scale factor of the triangles (large to small), or write "none" if they are not similar.

Answers:

1) $x = 8, y = 8\sqrt{2}$ 2) $x = y = \frac{7\sqrt{2}}{2}$ 3) $x = 8; y = 8\sqrt{3}$ 4) $x = 10; y = 5\sqrt{3}$ 5) $x = y = 10$

6) $x = \frac{9\sqrt{3}}{2}; y = \frac{9}{2}$ 7) $x = \frac{\sqrt{3}}{3}; y = \frac{2}{3}$ 8) $x = 2\sqrt{2}; y = 2\sqrt{6}$ 9) $x = \sqrt{2}; y = 2\sqrt{2}$ 10) $x = y = 3\sqrt{2}$

11) $x = 8\sqrt{3}; y = 4\sqrt{3}$ 12) $x = 7; y = 14$ 13) $x = 3\sqrt{2}; y = 6$ 14) $x = y = 5\sqrt{2}$ 15) $x = 12\sqrt{3}; y = 18$

16) $7\sqrt{3}$ 17) $5\sqrt{2}$ *cm* 18) 120 19) $x = 3\sqrt{2}; y = 6\sqrt{2}$ 20) $x = 3; y = 1$ 21) $\sqrt{21}$

22) $4\sqrt{3}$ 23) $13\sqrt{2}$ 24) 18 25) $15\sqrt{2}$ 26) C

27) congruent, proportional 28) yes by AA~ 29) $\Delta ABE \sim \Delta DBC$ 30) $\frac{3}{2}$