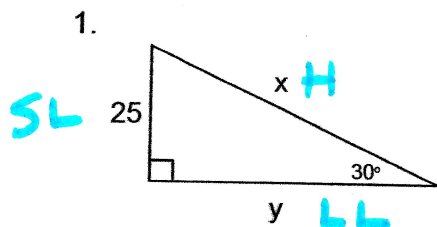# Practice #18   Alg 2   Review Trig Ratios and Sp Rt △'s   Monday, April 20, 2020   ANSWERS
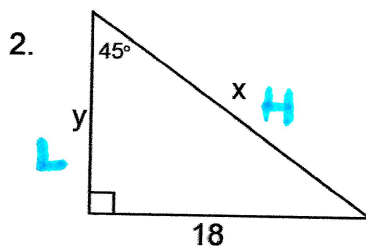
Find the EXACT value of x and y in each △ using the relationships in the Special Right △'s. Rationalize denominators and reduce fractions.
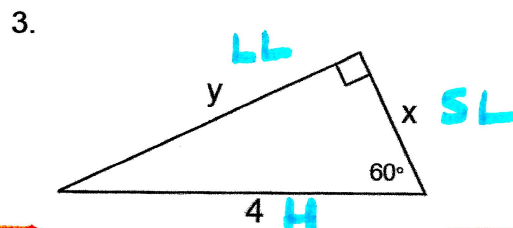
1.

SL 25   x H   30°   y LL

$x = HYP = SL \cdot 2 = \boxed{50}$

$y = LL = SL \cdot \sqrt{3} = \boxed{25\sqrt{3}}$

2.

45°   x H   y L   18

$x = HYP = LEG \cdot \sqrt{2} = \boxed{18\sqrt{2}}$

$y = LEG = \boxed{18}$

3.

LL   y   x SL   60°   4 H

$x = SL = HYP \div 2 = \boxed{2}$

$y = LL = SL \cdot \sqrt{3} = \boxed{2\sqrt{3}}$
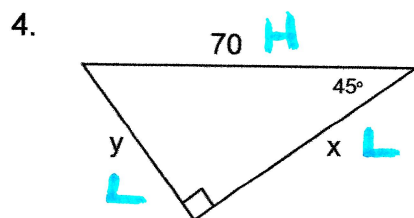
4.

70 H   45°   y   x L   L

$\begin{cases} x = \\ y = \end{cases}$ LEGS ARE $\cong$ → Leg $= \dfrac{HYP}{\sqrt{2}}$

$= \dfrac{70}{\sqrt{2}} \cdot \dfrac{\sqrt{2}}{\sqrt{2}}$

$= \dfrac{70\sqrt{2}}{2} = \boxed{35\sqrt{2}}$

5.

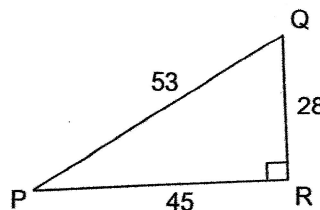15 LL   30°   x   y H   SL

$x = SL = \dfrac{LL}{\sqrt{3}} = \dfrac{15}{\sqrt{3}} \cdot \dfrac{\sqrt{3}}{\sqrt{3}} = \dfrac{15\sqrt{3}}{3}$

$\boxed{X = 5\sqrt{3}}$
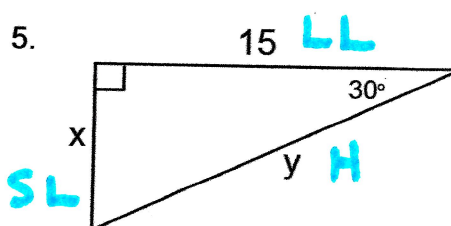
$y = HYP = SL \cdot 2 = 5\sqrt{3} \cdot 2$

$\boxed{y = 10\sqrt{3}}$

6. Use the given triangle to write each of the trig ratios:

SOH CAH TOA

Q, 53, 28, P, 45, R

a) $\sin P = \dfrac{28}{53}$

b) $\cos P = \dfrac{45}{53}$

c) $\tan Q = \dfrac{45}{28}$

d) $\cos Q = \dfrac{28}{53}$

7. In △ABC, $\angle C$ is the right angle. Given $\sin B = \dfrac{16}{65}$, do the following:

- draw △ABC
- label the vertices with the letters, A, B, and C
- label the sides with their lengths which means you'll need to find the missing length
- write the following ratios:

$\cos B = \dfrac{63}{65}$

$\tan B = \dfrac{16}{63}$

B   H 65   63 A   C 16 O A

$\sin B = \dfrac{OPP}{HYP} \to \dfrac{16}{65}$

use pythagorean thm to find 3rd side:

$65^2 = x^2 + 16^2$

$\sqrt{x^2} = \sqrt{65^2 - 16^2}$ $x = 63$

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