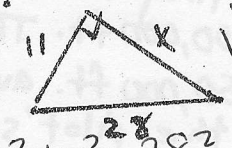
Key

Chapter 8 Study Guide - Round to hundredths place.

Find the value of the variable in each.

1.



$\sqrt{663}$

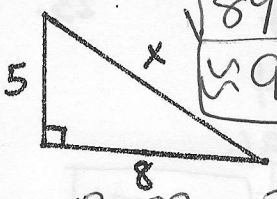
$\boxed{\approx 25.75}$

$11^2 + x^2 = 28^2$

$121 + x^2 = 784$

$-121 \quad -121$

2.



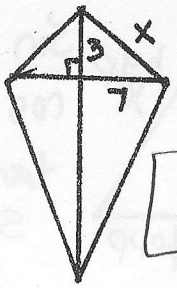
$\sqrt{89}$

$\boxed{\approx 9.43}$

$5^2 + 8^2 = x^2$

$25 + 64 = x^2$

3.



$3^2 + 7^2 = x^2$

$9 + 49 = x^2$

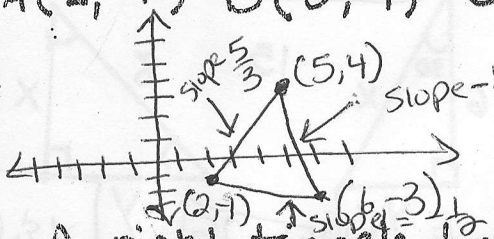
$\sqrt{58} = \sqrt{x^2}$

$\boxed{7.62 = x}$

4. Is $\triangle ABC$ a right $\triangle$? $\boxed{\text{NO}}$

A(2, −1) B(5, 4) C(6, −3)

$\frac{4+1}{5-2} = \frac{5}{3}$



$\frac{4+3}{5+6} = \frac{7}{-1}$

$\frac{-3+1}{6-2} = \frac{-2}{4}$

5. A $\triangle$ has side lengths of 16, 30, and 32. Is it a right $\triangle$?

$16^2 + 30^2 \stackrel{?}{=} 32^2$

$256 + 900 = 1024$ $\boxed{\text{NO}}$

$1156 = 1024$

6. A right triangle has side lengths of 3, 4, 5. Are these side lengths a pythagorean triple? Explain.

$3^2 + 4^2 \stackrel{?}{=} 5^2$

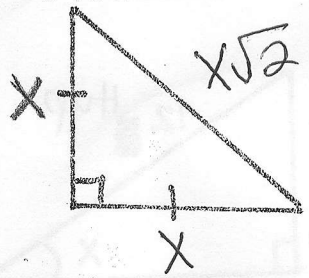
$9 + 16 = 25$

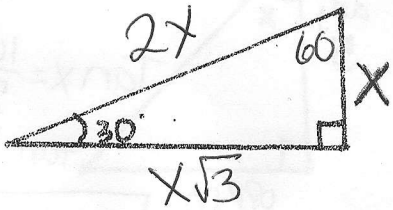
$\boxed{\text{yes}}$

7. What is a Pythagorean triple?

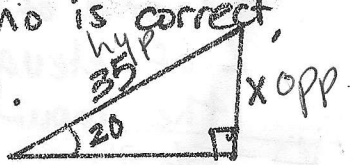
3 Whole #s that work in the pythagorean theorem

8. Label each special right $\triangle$ below. Label all $\angle$s and sides.

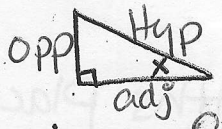




9. Tom was given the problem below. He claimed that he is unable to solve it. His friend, John said it is possible to solve. State who is correct, and if it can be solved, explain how.



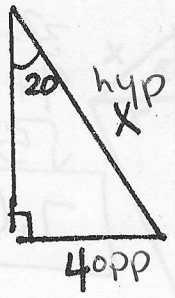
$\sin 20 = \frac{x}{35}$ $\quad .34 = \frac{x}{35}$ $\quad \boxed{x \approx 12}$



Label hypotenuse, opposite, and adjacent

10. $\sin x = \frac{opp}{hyp}$ $\cos x = \frac{adj}{hyp}$ $\tan x = \frac{opp}{adj}$

11.



use

$\sin 20 = 0.34$

$\cos 20 = 0.94$

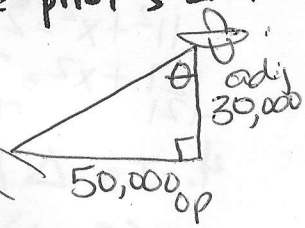
$\tan 20 = 0.36$

$\sin 20 = \frac{4}{x}$

$.34 = \frac{4}{x}$

$\boxed{x = 11.76}$

23. A plane is flying at an elevation of 30,000 ft. The runway is 50,000 ft. away. What should the pilot's ∠ of descent be?



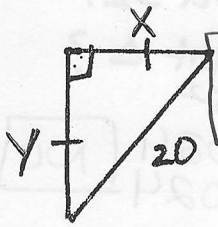
$\tan \theta = \frac{50,000}{30,000}$

$\tan^{-1}(1.67)$

$\boxed{\theta = 59.1}$

Solve for the variable(s).

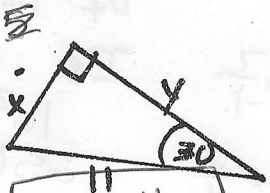
12.



$\boxed{x \,\&\, y \; 10\sqrt{2}}$

$\frac{20}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{20\sqrt{2}}{2}$

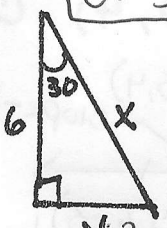
13.



$\frac{11}{2}$

$\boxed{x = \frac{11}{2} \quad y = \frac{11\sqrt{2}}{2}}$

14.

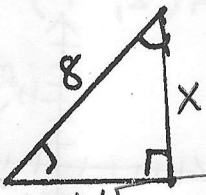


$\frac{6}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{6\sqrt{3}}{3}$

$\boxed{y = 2\sqrt{3}}$

$\boxed{x = 4\sqrt{3}}$

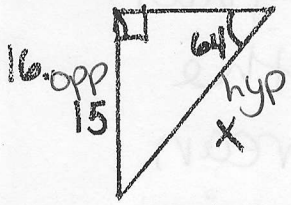
15.



$\frac{8\sqrt{2}}{\sqrt{2}\sqrt{2}} = \frac{8\sqrt{2}}{2}$

$\boxed{x \,\&\, y = 4\sqrt{2}}$

16.

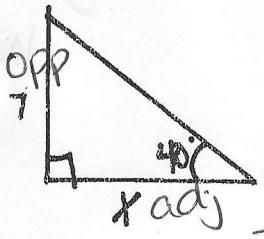


$\sin 64 = \frac{15}{x}$

$.899 = \frac{15}{x}$

$\boxed{x = 16.7}$

17.

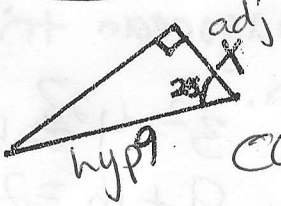


$\tan 40 = \frac{7}{x}$

$.839 = \frac{7}{x}$

$\boxed{x = 8.3}$

18.

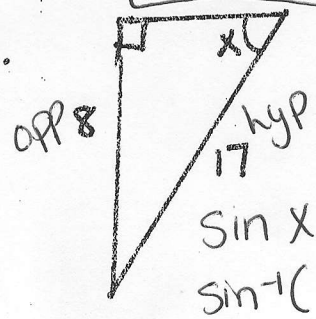


$\cos 25 = \frac{x}{9}$

$.906 = \frac{x}{9}$

$\boxed{x = 8.16}$

19.

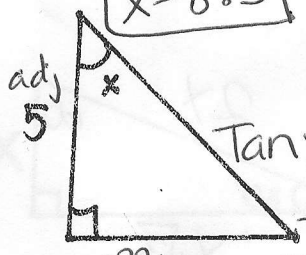


$\sin x = \frac{8}{17}$

$\sin^{-1}(.471)$

$\boxed{28.1}$

20.

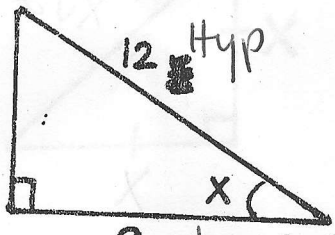


$\tan x = \frac{10}{5}$

$\tan^{-1}(2)$

$\boxed{x = 63.4}$

21.



$\cos x = \frac{9}{12}$

$\cos^{-1}(.75)$

$\boxed{41.4}$

22. A pilot has a runway length of 500 yds. The mountain at the end of the runway is 750 yds high. At what ∠ of elevation will the pilot need to climb to clear the mountain top by 100 yds?

$\boxed{\theta = 56.3°}$

$\tan \theta = \frac{750}{500}$ $\tan^{-1}(1.5)$