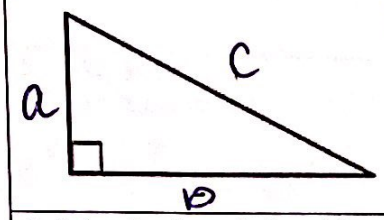
Name _____ 8.1-8.2 Review Regular

Topic 1: Pythagorean Theorem/Converse

1. State the Pythagorean Theorem and label the diagram with a, b, c and leg/hypotenuse.



$a^2+b^2=c^2$

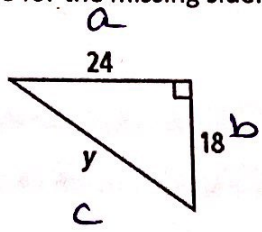
2. Fill in the Pythagorean Converse

If $a^2 + b^2 = c^2$, then right Δ

If $a^2 + b^2 > c^2$, then acute Δ

If $a^2 + b^2 < c^2$, then obtuse Δ

3. Solve for the missing side.



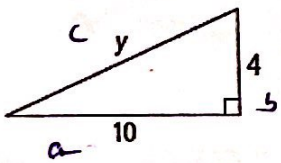
$24^2+18^2=y^2$

$576+324=y^2$

$900=\sqrt{y^2}$

$30=y$

4. Solve for the missing side.



$4^2+10^2=y^2$

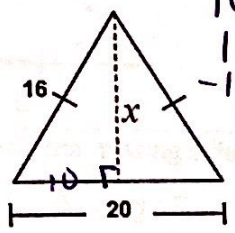
$16+100=y^2$

$116=y^2$

$\sqrt{116}=y$

$\sqrt{4}\sqrt{29}=2\sqrt{29}$

5. Solve for x.



$10^2+x^2=16^2$

$100+x^2=256$

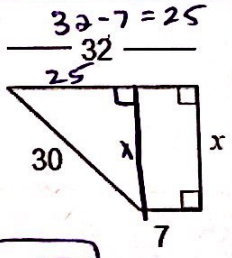
$-100 \quad -100$

$x^2=156$

$x=\sqrt{156}=\sqrt{4}\sqrt{39}$

$=2\sqrt{39}$

6. Solve for the missing side.



$25^2+x^2=30^2$

$625+x^2=900$

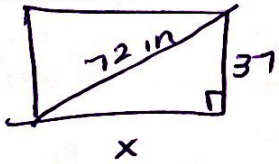
$-625 \quad -625$

$x^2=275$

$x=\sqrt{275}$

$\sqrt{25}\sqrt{11}=5\sqrt{11}$

7. A 72 Inch television is featured in a sales catalog. This distance is the diagonal distance across the television screen. If the screen measures 37 Inches in height, what is the width of the screen?



$x^2+37^2=72^2$

$x^2+1369=5184$

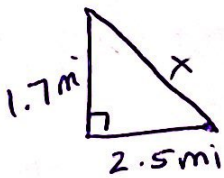
$-1369 \quad -1369$

$x^2=3815$

$x=\sqrt{3815}$

$x=61.8$ in

8. Christina walks from her house 2.5 miles west to get to the library. She then walks 1.7 miles north to the ice cream shop. How far will Christina walk home if she is taking the most direct route?



$1.7^2+2.5^2=x^2$

$2.89+6.25=x^2$

$9.14=x^2$

$\sqrt{9.14}=x$

3 miles

9. 18, 24, 30

$18+24>30$ ✓

$18^2+24^2 \_\_ 30^2$

$900 = 900$

- ☐ ~~Not a Δ~~
- ☐ Acute
- ☑ Right
- ☐ Obtuse

10. 8, 15, 23

$8+15>23$ X

- ☑ Not a Δ
- ☐ Acute
- ☐ Right
- ☐ Obtuse

11. 31, 35, 39

$31+35>39$

$31^2+35^2 \_\_ 39^2$

$2186 > 1521$

- ☐ ~~Not a Δ~~
- ☑ Acute
- ☐ Right
- ☐ Obtuse

12. 11, 19, 28

$11+19>28$ ✓

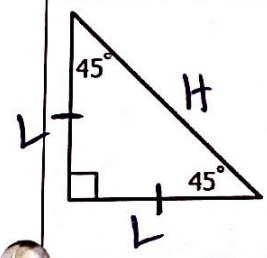
$11^2+19^2 \_\_ 28^2$

$482 < 784$

- ☐ ~~Not a Δ~~
- ☐ Acute
- ☐ Right
- ☑ Obtuse

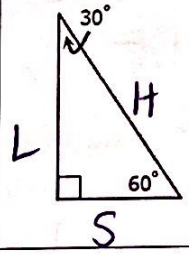
Topic 2: Special Right Triangles

Label the 45-45-90 triangle and write out the formula(s)



$H = L\sqrt{2}$

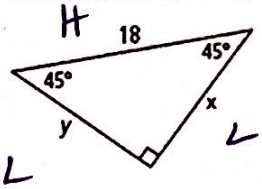
Label the 30-60-90 triangle and write out the formula(s)



$H = 2S$

$L = S\sqrt{3}$

15. Find the missing side lengths.



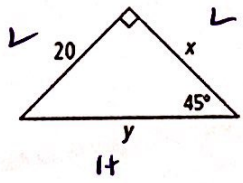
$H = L\sqrt{2}$

$\frac{18}{\sqrt{2}} = \frac{x\sqrt{2}}{\sqrt{2}}$

$\frac{18}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{18\sqrt{2}}{2} = 9\sqrt{2}$

$x = 9\sqrt{2}$ $y = 9\sqrt{2}$

16. Find the missing side lengths.

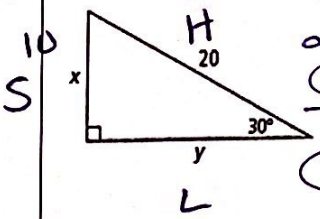


$x = 20$ $y = 20\sqrt{2}$

$H = L\sqrt{2}$

$y = 20\sqrt{2}$

17. Find the missing side lengths.



$H = 2S$

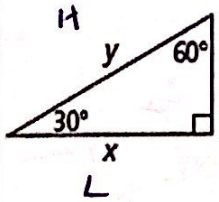
$20 = 2x$

$10 = x$

$L = S\sqrt{3}$

$y = 10\sqrt{3}$

18. Find the missing side lengths.



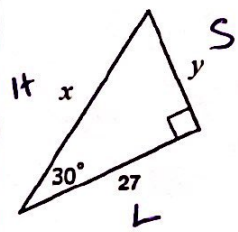
$H = 2S$

$y = 2(15) = 30$

~~$L = S\sqrt{3}$~~

$x = 15\sqrt{3}$

19. Find the missing side lengths.



$L = S\sqrt{3}$

$\frac{27}{\sqrt{3}} = \frac{y\sqrt{3}}{\sqrt{3}}$

$\frac{27}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{27\sqrt{3}}{3} = 9\sqrt{3}$

$y = 9\sqrt{3}$

$H = 2S$

$x = 2(9\sqrt{3})$

$= 18\sqrt{3}$