

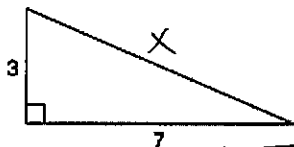
Name

key

HW #9-8: Quiz Review Worksheet #2

1. Find the length of the missing side (exact answers). Tell whether the side lengths form a Pythagorean Triple.

a.



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

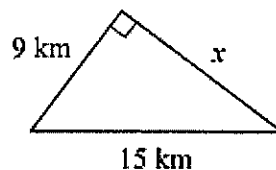
$$9 + 49 = x^2$$

$$58 = x^2 \rightarrow$$

$$x = \sqrt{58}$$

Not a triple

b.



$$9^2 + x^2 = 15^2$$

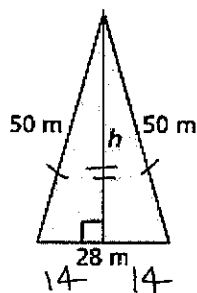
$$81 + x^2 = 225$$

$$x^2 = 144$$

$$x = 12$$

yes, a triple

2. Find the area of the isosceles triangle.



$$14^2 + h^2 = 50^2$$

$$h^2 + 196 = 2500$$

$$h^2 = 2304$$

$$h = 48$$

$$A = \frac{(48)(28)}{2}$$

$$A = 672 \text{ m}^2$$

3. Verify that the segments lengths form a triangle. If so, determine whether the triangle is acute, right, or obtuse.

a. 9, 12, 13

$$9 + 12 > 13$$

yes, a Δ

$$9^2 + 12^2 \boxed{?} 13^2$$

$$225 > 169$$

acute Δ

b. 8, 12, 15

$$8 + 12 > 15$$

yes, a Δ

$$8^2 + 12^2 \boxed{?} 15^2$$

$$208 < 225$$

Obtuse Δ c. $\sqrt{197}$, $2\sqrt{37}$, 7

$$\approx 14.04 \quad 12.16$$

$$2\sqrt{37} + 7 > \sqrt{197}$$

yes, a Δ

$$(2\sqrt{37})^2 + 7^2 \boxed{?} (\sqrt{197})^2$$

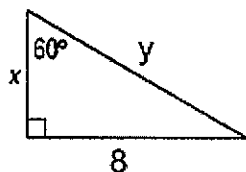
$$148 + 49 \boxed{?} 197$$

$$197 = 197$$

right Δ

4. Find the values of x and y (exact answers).

a.



$$LL = SL\sqrt{3}$$

$$8 = x\sqrt{3}$$

$$x = \frac{8}{\sqrt{3}} \left(\frac{\sqrt{3}}{\sqrt{3}} \right)$$

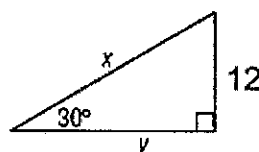
$$x = \frac{8\sqrt{3}}{3}$$

$$\text{hyp} = 2SL$$

$$y = 2 \left(\frac{8\sqrt{3}}{3} \right)$$

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

b.



$$LL = SL\sqrt{3}$$

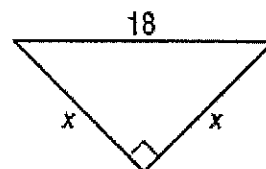
$$y = 12\sqrt{3}$$

$$\text{hyp} = 2 \cdot SL$$

$$x = 2(12)$$

$$x = 24$$

c.



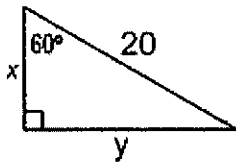
$$\text{hyp} = \text{leg}\sqrt{2}$$

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

$$x = \frac{18}{\sqrt{2}} \left(\frac{\sqrt{2}}{\sqrt{2}} \right)$$

$$x = \frac{18\sqrt{2}}{2} \Rightarrow x = 9\sqrt{2}$$

d.



$$\text{hyp} = 2 \cdot \text{SL}$$

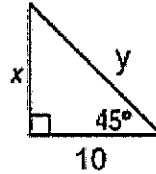
$$20 = 2x$$

$$\boxed{10 = x}$$

$$\text{LL} = \text{SL} \cdot \sqrt{3}$$

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

e.



$$\boxed{x = 10}$$

$$\text{hyp} = \text{leg} \sqrt{2}$$

$$\boxed{y = 10\sqrt{2}}$$

5. Find the geometric mean of the two numbers (exact answers).

a. 3 and 7

$$\frac{3}{x} = \frac{x}{7}$$

$$x^2 = 21$$

$$\boxed{x = \sqrt{21}}$$

b. 20 and 25

$$\frac{20}{x} = \frac{x}{25}$$

$$\sqrt{x^2} = \sqrt{25 \cdot 20}$$

$$x = \sqrt{25 \cdot 4 \cdot 5}$$

$$\boxed{x = 10\sqrt{5}}$$

c. 8 and 18

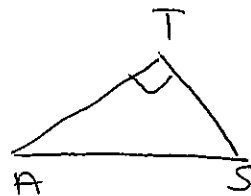
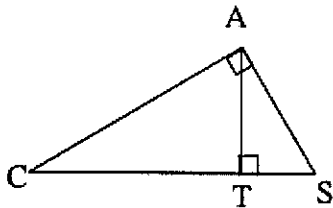
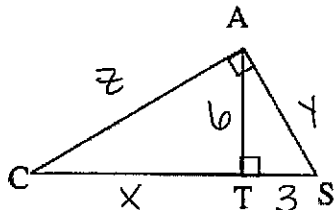
$$\frac{8}{x} = \frac{x}{18}$$

$$x^2 = 8 \cdot 18$$

$$x = \sqrt{4 \cdot 2 \cdot 9 \cdot 2}$$

$$x = 3 \cdot 2 \cdot 2$$

$$\boxed{x = 12}$$

6. Complete the similarity statement: $\triangle ACS \sim \triangle T A S \sim \triangle T C A$ 7. In the diagram from #6 (given again below), if $AT = 6$ and $TS = 3$, find TC , AS , and AC .

$$6^2 = 3x$$

$$36 = 3x$$

$$12 = x$$

$$\boxed{TC = 12}$$

$$y^2 = (3)(15)$$

$$y = \sqrt{3 \cdot 3 \cdot 5}$$

$$y = 3\sqrt{5}$$

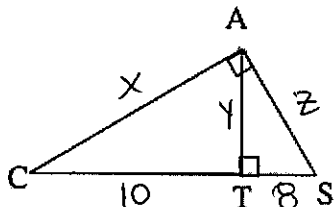
$$\boxed{AS = 3\sqrt{5}}$$

$$z^2 = (12)(15)$$

$$z = \sqrt{4 \cdot 3 \cdot 3 \cdot 5}$$

$$z = 6\sqrt{5}$$

$$\boxed{AC = 6\sqrt{5}}$$

8. In the diagram from #6 (given again below), if $CT = 10$ and $TS = 8$, find AC , AT , and AS .

$$y^2 = (10)(8)$$

$$y = \sqrt{5 \cdot 2 \cdot 2 \cdot 4}$$

$$y = 4\sqrt{5}$$

$$\boxed{AT = 4\sqrt{5}}$$

$$x^2 = (10)(18)$$

$$x = \sqrt{5 \cdot 2 \cdot 2 \cdot 9}$$

$$x = 6\sqrt{5}$$

$$\boxed{AC = 6\sqrt{5}}$$

$$z^2 = (8)(18)$$

$$z = \sqrt{4 \cdot 2 \cdot 2 \cdot 9}$$

$$z = 12$$

$$\boxed{AS = 12}$$