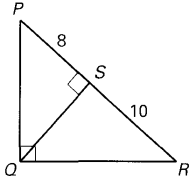
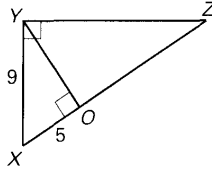


Geometry – Chapter 7 Review Sheet – Right Triangles and Trigonometry

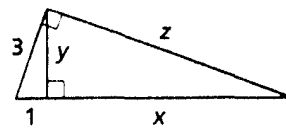
1. Find QS



2. Find XZ

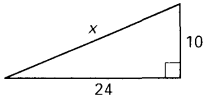


3. Find x, y, and z

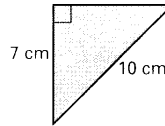


Find the missing side of the triangle. Leave answer in simplest radical form.

4.



5.



Determine if the following triangles are acute, right, or obtuse.

6. $6\sqrt{2}, 6\sqrt{2}, 12$

7. 2, 4, 5

8. 9, 10, 13

Determine if the following are Pythagorean Triples.

9. 8, 15, 17

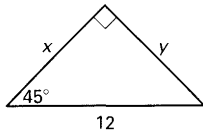
10. 10, 20, 35

11. $\sqrt{11}, 2\sqrt{2}, 10$

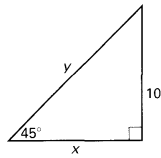
12. The height of a telephone pole is 15m. A student stands 48m from the foot of the pole. What is the angle of elevation from the ground to the top of the telephone pole at this point? Round your answer to the nearest degree.

Find the value of x . Write your answer in simplest radical form.

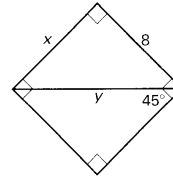
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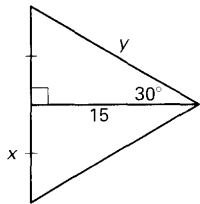
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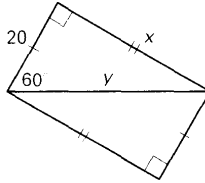
15.



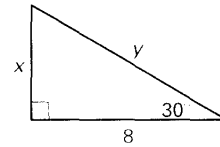
16.



17.

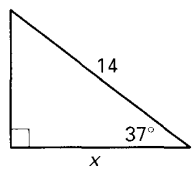


18.

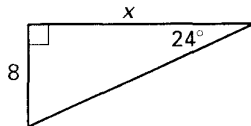


Find the value of x . Round lengths of segments to the nearest tenth and angle measures to the nearest degree.

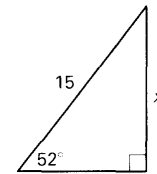
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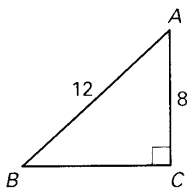
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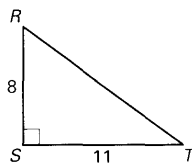
21.



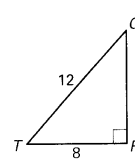
22. Find $m\angle B$



23. Find $m\angle R$



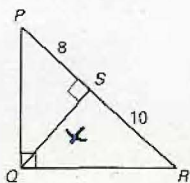
24. Find $m\angle T$



SOLUTIONS

Geometry – Chapter 7 Review Sheet – Right Triangles and Trigonometry

1. Find QS

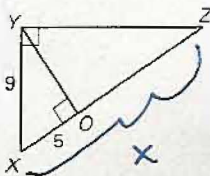


$$\frac{8}{x} = \frac{x}{10}$$

$$x^2 = 80$$

$$x = \sqrt{80} \approx 8.9$$

2. Find XZ

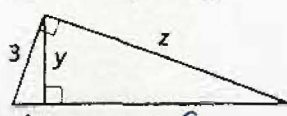


$$\frac{5}{9} = \frac{9}{x}$$

$$5x = 81$$

$$x = 16.2$$

3. Find x, y, and z



$$\frac{1}{3} = \frac{3}{1+x}$$

$$1+x = 9$$

$$x = 8$$

$$\frac{1}{y} = \frac{y}{8}$$

$$y^2 = 8$$

$$y = \sqrt{8} \approx 2.8$$

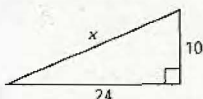
$$\frac{8}{z} = \frac{z}{9}$$

$$z^2 = 72$$

$$z = \sqrt{72} \approx 8.5$$

Find the missing side of the triangle. Leave answer in simplest radical form.

4.



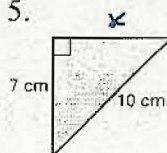
$$x^2 = 24^2 + 10^2$$

$$x^2 = 576 + 100$$

$$\sqrt{x^2} = \sqrt{676}$$

$$x = 26$$

5.



$$x^2 + 7^2 = 10^2$$

$$x^2 + 49 = 100$$

$$x^2 = 51$$

$$x = \sqrt{51} \approx 7.1$$

Determine if the following triangles are acute, right, or obtuse.

6. $6\sqrt{2}, 6\sqrt{2}, 12$

$$(6\sqrt{2})^2 + (6\sqrt{2})^2 = 12^2$$

$$72 + 72 = 144$$

$$144 = 144$$

RIGHT

7. 2, 4, 5

$$2^2 + 4^2 = 5^2$$

$$4 + 16 = 25$$

$$20 < 25$$

OBTUSE

8. 9, 10, 13

$$9^2 + 10^2 = 13^2$$

$$81 + 100 = 181$$

$$181 > 169$$

ACUTE

Determine if the following are Pythagorean Triples.

9. 8, 15, 17

$$8^2 + 15^2 = 17^2$$

$$64 + 225 = 289$$

$$289 = 289$$

yes

10. 10, 20, 35

$$10^2 + 20^2 = 35^2$$

$$100 + 400 = 500$$

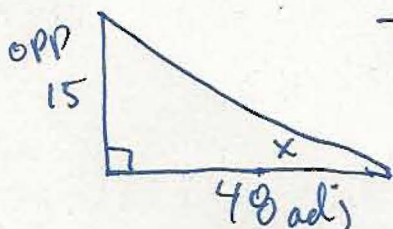
$$500 < 1225$$

no

11. $\sqrt{11}, 2\sqrt{2}, 10$

no - must be whole numbers

12. The height of a telephone pole is 15m. A student stands 48m from the foot of the pole. What is the angle of elevation from the ground to the top of the telephone pole at this point? Round your answer to the nearest degree.



$$\tan x = \frac{15}{48} = .3125 \text{ so } x = \tan^{-1}(.3125)$$

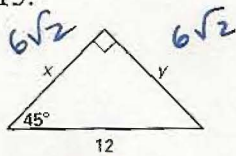
Using Trig Table $x \approx 17^\circ$

Using $\tan^{-1}(.3125)$ on calculator $x = 17.4^\circ$

SOLUTIONS

Find the value of x. Write your answer in simplest radical form.

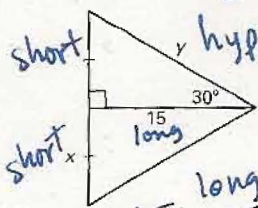
13.



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

$$\text{So } \begin{cases} x = \frac{12}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} \\ \text{both } y = \frac{12\sqrt{2}}{2} = 6\sqrt{2} \end{cases}$$

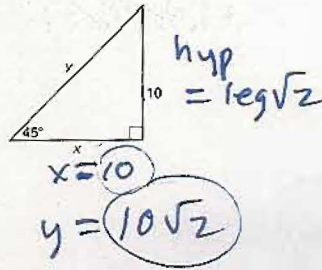
16.



$$\text{short} = \frac{\text{long}}{\sqrt{3}}$$

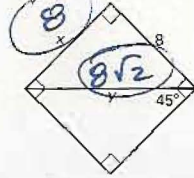
$$\text{So } \begin{cases} x = \frac{15}{\sqrt{3}} = 5\sqrt{3} \\ y = 2(5\sqrt{3}) = 10\sqrt{3} \end{cases}$$

14.

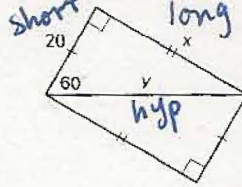


$$\begin{cases} x = 10 \\ y = 10\sqrt{2} \end{cases}$$

15.

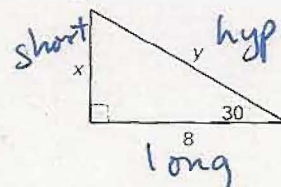


17.



$$\begin{cases} x = 20\sqrt{3} \\ y = 2(20) = 40 \end{cases}$$

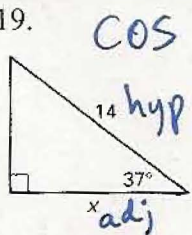
18.



$$\begin{cases} x = \frac{8}{\sqrt{3}} = \frac{8\sqrt{3}}{3} \\ y = 2\left(\frac{8\sqrt{3}}{3}\right) = \frac{16\sqrt{3}}{3} \end{cases}$$

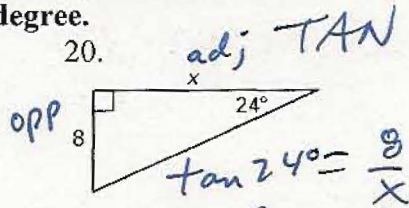
Find the value of x. Round lengths of segments to the nearest tenth and angle measures to the nearest degree.

19.



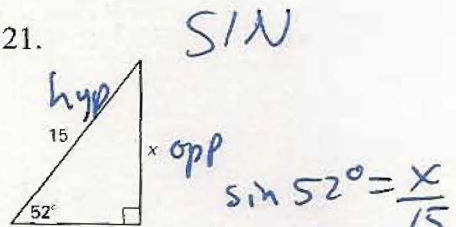
$$\begin{aligned} \cos 37^\circ &= \frac{x}{14} \\ x &= 14(\cos 37^\circ) = 14(.7986) \\ x &\approx 11.1 \end{aligned}$$

20.



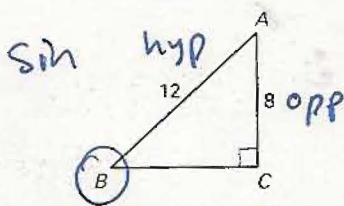
$$\begin{aligned} \tan 24^\circ &= \frac{8}{x} \\ x &= \frac{8}{\tan 24} \\ x &= \frac{8}{.4452} \approx 18.0 \end{aligned}$$

21.



$$\begin{aligned} \sin 52^\circ &= \frac{x}{15} \\ x &= 15(\sin 52^\circ) \\ &= 15(.7880) \\ x &\approx 11.8 \end{aligned}$$

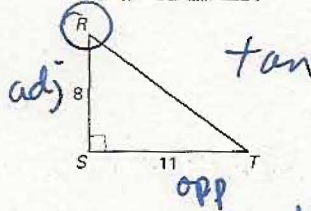
22. Find m∠B



$$\sin B = \frac{8}{12} \approx .6667$$

$$\begin{aligned} \text{So } B &= \sin^{-1}(.6667) \\ B &\approx 41.8^\circ (\text{calc}) \\ &\approx 42^\circ (\text{table}) \end{aligned}$$

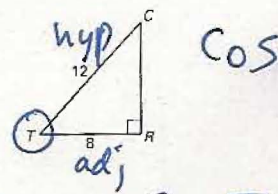
23. Find m∠R



$$\tan R = \frac{11}{8} \approx 1.375$$

$$\begin{aligned} \text{So } R &= \tan^{-1}(1.375) \\ R &\approx 54.0^\circ (\text{calc}) \\ R &\approx 54^\circ (\text{table}) \end{aligned}$$

24. Find m∠T



$$\cos T = \frac{8}{12} \approx .6667$$

$$\begin{aligned} \text{So } T &= \cos^{-1}(.6667) \\ T &\approx 48.2^\circ (\text{calc}) \\ T &\approx 48^\circ (\text{table}) \end{aligned}$$