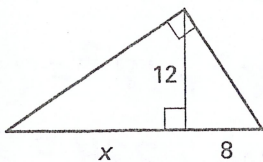


Chapter 7.3: Worksheet

Complete and solve the proportion.

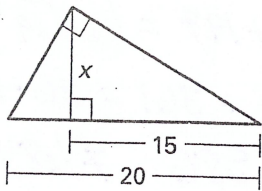
* Draw out your Δ 's

1. $\frac{x}{12} = \frac{?}{8}$ 12



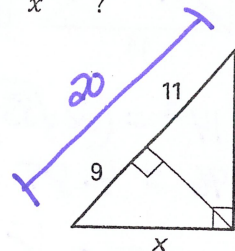
$\frac{x}{12} = \frac{12}{8}$
 $\frac{144}{8} = \frac{8x}{8}$
 $x = 18$
 thm 7.6

2. $\frac{15}{x} = \frac{x}{?}$ 5



$\frac{15}{x} = \frac{x}{5}$
 $\sqrt{x^2} = \sqrt{75}$
 $x = 5\sqrt{3}$

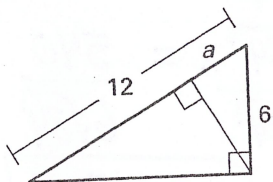
3. $\frac{9}{x} = \frac{x}{?}$



$\frac{9}{x} = \frac{x}{20}$
 $\sqrt{x^2} = \sqrt{180}$
 $x = 6\sqrt{5}$
 $? = 20$

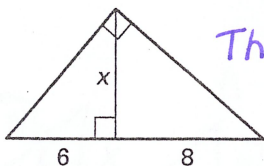
Find the value(s) of the variable(s).

4.



$\frac{12}{6} = \frac{6}{a}$
 $\frac{12a}{12} = \frac{36}{12}$
 $a = 3$

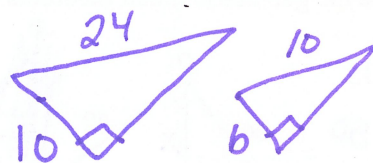
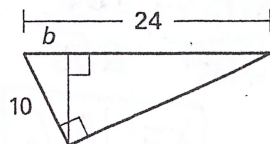
5.



Thm 7.6

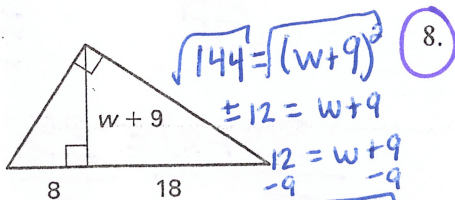
$\frac{6}{x} = \frac{x}{8}$
 $\sqrt{48} = \sqrt{x^2}$
 $4\sqrt{3} = x$

6.



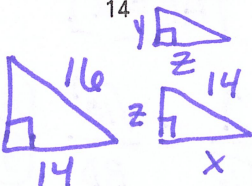
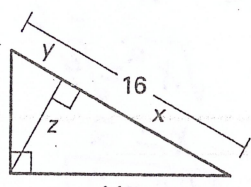
$\frac{24}{10} = \frac{10}{b}$
 $\frac{24b}{24} = \frac{100}{24}$
 $b = 4.2$

Skip



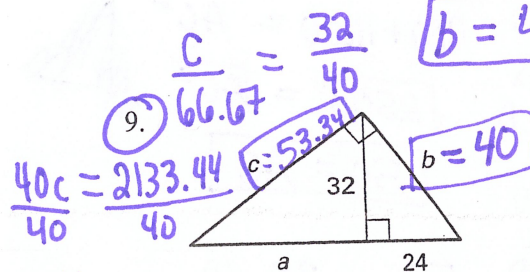
$\frac{8}{w+9} = \frac{w+9}{18}$
 $144 = (w+9)^2$
 $\pm 12 = w+9$
 $12 = w+9$
 $-9 -9$
 $w = 3$

$144 = w^2 + 18w + 81$
 $-144 -144$
 $0 = w^2 + 18w - 63$
 $(w+21)(w-3)$
 $w = 3$



$\frac{16}{14} = \frac{14}{x}$

$\frac{16x}{16} = \frac{196}{16}$
 $x = 12.25$



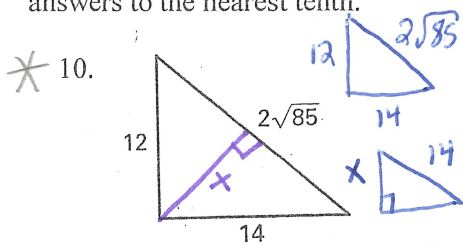
$y + x = 16$
 $y + 12.25 = 16$
 $-12.25 -12.25$
 $y = 3.75$

$\frac{12.25}{2} = \frac{z}{3.75}$
 $\sqrt{z^2} = \sqrt{45.94}$
 $z = 6.78$

$\frac{a}{32} = \frac{32}{24}$

$\frac{24a}{24} = \frac{1024}{24}$
 $a = 42.67$
 $\frac{b}{66.67} = \frac{24}{66.67}$
 $b = 8.64$

Tell whether the triangle is a right triangle. If so, find the length of the altitude to the hypotenuse. Round decimal answers to the nearest tenth.



$$12^2 + 14^2 = (2\sqrt{85})^2$$

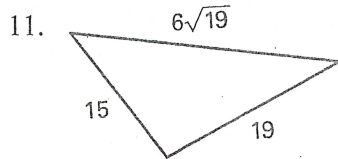
$$144 + 196 = 4 \cdot 85$$

$$340 = 340 \checkmark$$

$$\frac{2\sqrt{85}}{14} = \frac{12}{x}$$

$$\frac{2\sqrt{85}x}{2\sqrt{85}} = \frac{168}{2\sqrt{85}}$$

$$x = 9.1$$



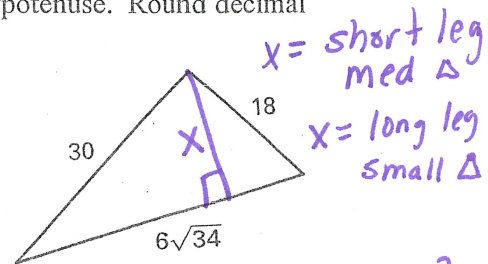
$$15^2 + 19^2 = (6\sqrt{19})^2$$

$$225 + 361 = 36 \cdot 19$$

$$586 \neq 684$$

No

12.



$$30^2 + 18^2 = (6\sqrt{34})^2$$

$$900 + 324 = 36 \cdot 34$$

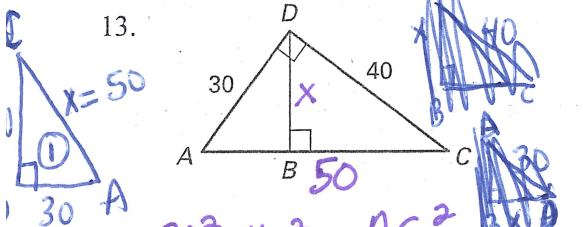
$$1224 = 1224 \checkmark$$

$$\frac{6\sqrt{34}}{30} = \frac{18}{x}$$

$$\frac{6\sqrt{34}x}{6\sqrt{34}} = \frac{540}{6\sqrt{34}}$$

$$x \approx 15.4$$

Use the geometric mean theorems to find AC and BD



$$30^2 + 40^2 = AC^2$$

$$900 + 1600 = AC^2$$

$$\sqrt{2500} = \sqrt{AC^2}$$

$$50 = AC$$

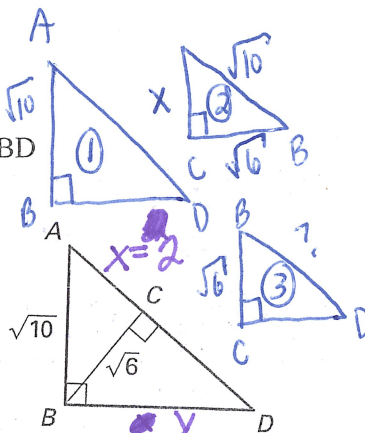
$$\frac{50}{40} = \frac{30}{x} \quad (1)$$

$$\frac{50}{x} = \frac{30}{x} \quad (3)$$

$$\frac{50x}{50} = \frac{1200}{50}$$

$$x = 24 \text{ BD}$$

14.



$$\sqrt{6}^2 + x^2 = (\sqrt{10})^2$$

$$6 + x^2 = 10$$

$$\sqrt{x^2} = \sqrt{4}$$

$$x = 2$$

$$AC = 2$$

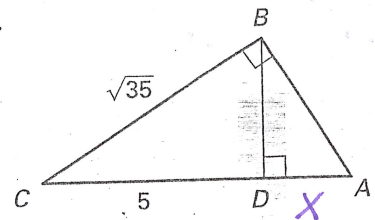
$$\frac{2}{\sqrt{6}} = \frac{\sqrt{10}}{BD} \quad (2)$$

$$\frac{2BD}{2} = \frac{\sqrt{60}}{2}$$

$$= 2\sqrt{15}$$

$$BD = \sqrt{15}$$

15.



$$\frac{5+x}{\sqrt{35}} = \frac{\sqrt{35}}{5}$$

$$\frac{5(5+x)}{5} = \frac{35}{5}$$

$$5+x = 7$$

$$-5 \quad -5$$

$$x = 2 \quad AC = 7$$

$$\frac{5}{5} = \frac{BD}{2}$$

$$BD = \sqrt{10} / \sqrt{10} = \sqrt{BD^2}$$