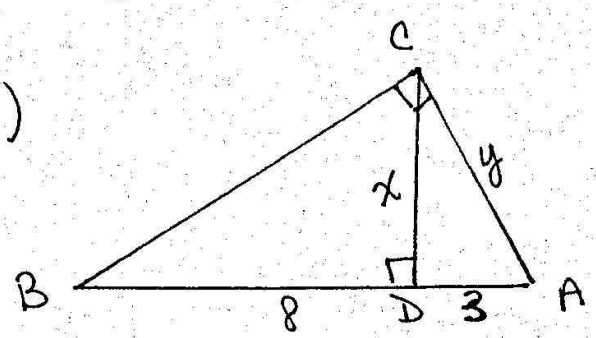
Geometry
Section 8-1
Selected Answers.

8.)



The measure of the altitude from the right angle (CD) is the G.M. between measures of 2 segs. of hyp (BD + DA).

$$\frac{\quad}{CD} = \frac{CD}{\quad} \rightsquigarrow \frac{BD}{CD} = \frac{CD}{DA}$$

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

$$24 = x^2$$

$$x = \sqrt{24}$$

$$x = 2\sqrt{6}$$

The measure of the leg (AC) of the right Δ (big one) is the G.M. btwn the entire hypotenuse (BA) & the segment of the hypotenuse adjacent to that leg (AD).

$$\frac{\quad}{CA} = \frac{CA}{\quad} \rightsquigarrow \frac{BA}{CA} = \frac{CA}{AD}$$

$$\frac{11}{y} = \frac{y}{3}$$

$$33 = y^2$$

$$\sqrt{33} = y$$

$$\boxed{x = 2\sqrt{6} \qquad y = \sqrt{33}}$$

Find G.M. btwn:

10.) 5 and 6

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

$$30 = x^2$$

$$\boxed{x = \sqrt{30}}$$

12.) $\sqrt{45}$ and $\sqrt{80}$

$$\frac{\sqrt{45}}{x} = \frac{x}{\sqrt{80}}$$

$$\sqrt{45} \cdot \sqrt{80} = x^2$$

$$\sqrt{9 \cdot 5} \cdot \sqrt{16 \cdot 5} = x^2$$

$$\sqrt{9 \cdot 16 \cdot 25} = x^2$$

$$3 \cdot 4 \cdot 5 = x^2$$

$$60 = x^2$$

$$\sqrt{60} = x$$

$$\boxed{2\sqrt{15} = x}$$

Find measure of altitudes.

18.) $\frac{9}{AD} = \frac{AD}{5}$

$$45 = (AD)^2$$

$$\sqrt{45} = AD$$

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

20.) $\frac{JM}{LM} = \frac{LM}{MK}$

$$\frac{8}{LM} = \frac{LM}{16}$$

$$128 = (LM)^2$$

$$\sqrt{128} = LM$$

$$\sqrt{16 \cdot 4 \cdot 2} = LM$$

$$4 \cdot 2\sqrt{2} = LM$$

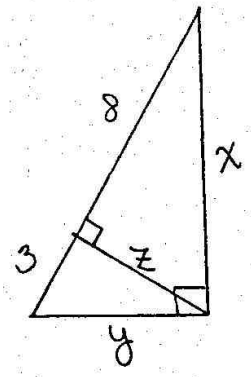
$$\boxed{8\sqrt{2} = LM}$$

22.) $UW = \sqrt{26}$

24.) The brace is 2.4 yards long.

Find x, y and z.

26.)



$\frac{8}{z} = \frac{z}{3}$

$24 = z^2$

$\sqrt{24} = z$

$\boxed{2\sqrt{6} = z}$

$\frac{11}{y} = \frac{y}{3}$

$33 = y^2$

$\boxed{\sqrt{33} = y}$

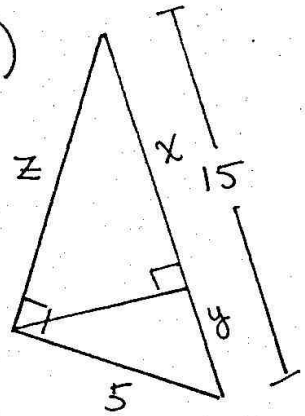
$\frac{11}{x} = \frac{x}{8}$

$88 = x^2$

$\sqrt{88} = x$

$\boxed{2\sqrt{22} = x}$

28.)



Have to find "y" first!

$\frac{15}{5} = \frac{5}{y}$

$15y = 25$

$y = \frac{25}{15}$

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

$\boxed{y = 1\frac{2}{3}}$

$x + y = 15$

$x + \frac{5}{3} = 15$

$x = 15 - \frac{5}{3}$

$x = \frac{45}{3} - \frac{5}{3}$

$x = \frac{40}{3}$

$\boxed{x = 13\frac{1}{3}}$

$\frac{15}{z} = \frac{z}{\frac{40}{3}}$

$15\left(\frac{40}{3}\right) = z^2$

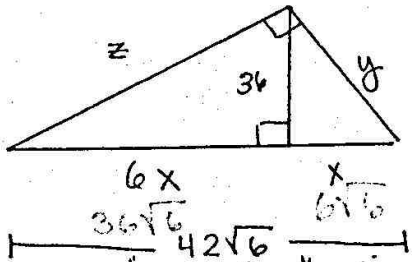
$5(40) = z^2$

$200 = z^2$

$\sqrt{200} = z$

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

30.)



have to find "x" first:

$$\frac{6x}{36} = \frac{36}{x}$$

$$6x^2 = 36(36)$$

$$6x^2 = 1296$$

$$x^2 = 216$$

$$x = \sqrt{216}$$

$$x = \sqrt{4 \cdot 9 \cdot 2 \cdot 3}$$

$$x = 2 \cdot 3\sqrt{2 \cdot 3}$$

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

216 → 4 · 54 → 2 · 27 → 9 · 3

then, y or z

$$\frac{42\sqrt{6}}{y} = \frac{y}{6\sqrt{6}}$$

$$(42\sqrt{6})(6\sqrt{6}) = y^2$$

$$1512 = y^2$$

$$\sqrt{1512} = y$$

$$\sqrt{4 \cdot 9 \cdot 42} = y$$

$$2 \cdot 3\sqrt{42} = y$$

$$\boxed{6\sqrt{42} = y}$$

1512 → 4 · 378 → 9 · 42

$$\frac{42\sqrt{6}}{z} = \frac{z}{36\sqrt{6}}$$

$$z^2 = (42\sqrt{6})(36\sqrt{6})$$

$$z^2 = 1512\sqrt{36}$$

$$z^2 = 9072$$

$$z = \sqrt{9072}$$

$$z = \sqrt{16 \cdot 9 \cdot 9 \cdot 7}$$

$$z = 4 \cdot 3 \cdot 3\sqrt{7}$$

$$\boxed{z = 36\sqrt{7}}$$

9072 → 16 · 567 → 9 · 63 → 9 · 7

32.) $\frac{a}{\sqrt{17}} = \frac{\sqrt{17}}{b}$

$a = 7$

$b = ?$

$\frac{7}{\sqrt{17}} = \frac{\sqrt{17}}{b}$

$7b = 17$

$b = \frac{17}{7}$

$b = 2\,3/7$