

Theorem 8-1 Questions, Part 1.

Example 3

a. If $AN = 4$ and $NB = 9$, find CN .



b. If $AC = 8$ and $AN = 4$, find NB .

Solution

a. $\frac{AN}{CN} = \frac{CN}{NB}$

$\frac{4}{x} = \frac{x}{9}$
 $x^2 = 36$
 $x = 6 = CN$

$\frac{4}{x} = \frac{x}{9}$
 $36 = x^2$

$x = 6$ from hyp. of 4 and 9.

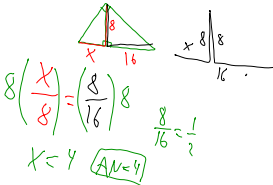
b. $\frac{AC}{AN} = \frac{AB}{AC}$, so $\frac{AC}{AN} = \frac{AB}{AN}$

$\frac{8}{4} = \frac{AB}{4}$
 $16 + 4y = 64$
 $4y = 48$
 $y = 12 = NB$

R3
and
handout

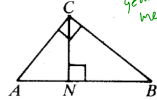


24. If $CN = 8$ and $NB = 16$, find AN .

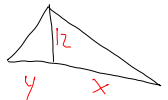


$8\left(\frac{x}{8}\right) = \left(\frac{8}{16}\right)8$
 $x = 4$ $AN = 4$

$\frac{a}{x} = \frac{x}{b}$
 $ab = x^2$
 $\sqrt{ab} = x$
geom. mean



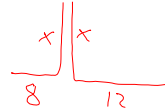
25. If $AN = 4$ and $CN = 12$, find NB .



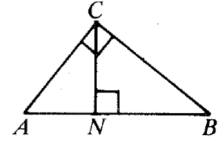
$\frac{4}{12} = \frac{12}{x}$
 $\frac{12}{4} = \frac{x}{12}$

$3 = \frac{x}{12}$
 $36 = x$
 $NB = 36$

26. If $AN = 8$ and $NB = 12$, find CN .



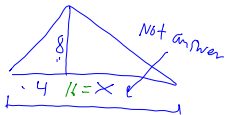
$\frac{8}{x} = \frac{x}{12}$
 $8 \cdot 12 = x^2$
 $2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 = x^2$
 $4\sqrt{6} = x$



$\sqrt{96} =$
 $= \sqrt{4 \cdot 24} = 2\sqrt{24}$
 $= 2\sqrt{4 \cdot 6} = 2 \cdot 2\sqrt{6}$
 $= 4\sqrt{6}$

27. If $AN = 4$ and $CN = 8$, find AB .

27. If $AN = 4$ and $CN = 8$, find AB .

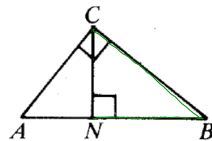


$\frac{4}{8} = \frac{8}{x}$

$\left(\frac{8}{4}\right)^2 = \frac{x}{8}$

$2 \cdot 8 = x$

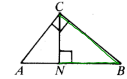
$16 = x$ $AB = 16 + 4 = 20$



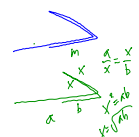
28. $AN = 5$ $AB = 12$ $AC = ?$



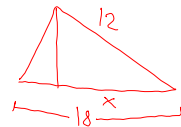
$\frac{12}{5} = \frac{x}{5}$
 $x = \sqrt{60}$
 $x = \sqrt{4 \cdot 15}$
 $x = 2\sqrt{15}$
 $AC = 2\sqrt{15}$



Boomerang

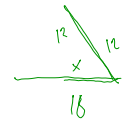


29. $AB = 18$, $CB = 12$, $NB = ?$



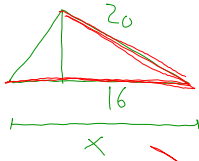
$\frac{18}{12} = \frac{6 \cdot 3}{4 \cdot 3} = \frac{6}{4} = \frac{3}{2} = \frac{3}{2}$

$\frac{18}{12} = \frac{12}{x}$
 $\frac{12}{18} = \frac{x}{12}$
 $12\left(\frac{2}{3}\right) = \left(\frac{x}{12}\right)12$



$\frac{24}{3} = x$
 $8 = x$ $NB = 8$

30. $CB=20$, $NB=16$, $AB=?$

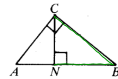


$$\frac{x}{20} = \frac{20}{16}$$

$$\frac{x}{20} = \frac{5}{4}$$

$$x = \frac{5}{4} \cdot 20 = 25$$

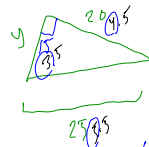
$$AB = 25$$



Bowling

30b,

Find AC



Pythagorean Triple (15, 20, 25)

$$y^2 + 20^2 = 25^2$$

$$y^2 = 625 - 400$$

$$y^2 = 225$$

$$y = 15$$

SIMPLIFY $\sqrt{\quad}$

1. No perfect squares

$$\sqrt{16} = 4 \quad \sqrt{32} = 2\sqrt{8} = 2\sqrt{2 \cdot 4} = 4\sqrt{2}$$

2. No denominator

$$\frac{1}{\sqrt{5}}$$

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

$$\sqrt{18} = 3\sqrt{2}$$

Nice answer.

$$\frac{\sqrt{2}}{2}$$

$$\frac{1}{\sqrt{2}} \left(\frac{\sqrt{2}}{\sqrt{2}} \right) = \frac{\sqrt{2}}{2}$$

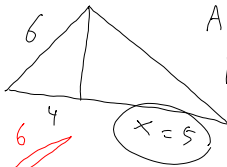
$$\frac{2}{\sqrt{2}} = \frac{2}{\sqrt{2}} \left(\frac{\sqrt{2}}{\sqrt{2}} \right) = \frac{2\sqrt{2}}{2} = \sqrt{2}$$

31.

$$AC=6$$

$$AN=4$$

$$NB=?$$



$$\frac{y}{6} = \frac{6}{4}$$

$$\frac{y}{6} = \frac{3}{2}$$

$$y = \frac{18}{2}$$

$$y = 9$$

$$AB = 9$$

$$NB = 9 - 4$$

$$NB = 5$$

