

Right Triangle Similarity and other Properties

Find the missing length indicated.

1) $\frac{32}{x+15} = \frac{12}{15}$
 $\frac{20}{12} = \frac{x}{15}$
 $15 \cdot 20 = 12x$
 $300 = 12x$
 $25 = x$

2) $\frac{15}{9} = \frac{x}{12}$
 $12 \cdot 15 = 9x$
 $180 = 9x$
 $20 = x$

3) $\frac{14}{21} = \frac{4}{x}$
 $\frac{14}{4} = \frac{21}{x}$
 $\frac{10}{21+x} = \frac{4}{x}$

4) $\frac{4}{8} = \frac{2}{x}$ or $\frac{4}{2} = \frac{8}{x}$
 $4x = 16$
 $x = 4$

5) $\frac{20}{12} = \frac{x}{15}$
 $180 = 12x$
 $15 = x$

6) $\frac{15}{10} = \frac{9}{y}$
 $15y = 90$
 $y = 6$
 $x = 16$
 $6 = y$

Solve for x.

7) $\frac{x-6}{1} = \frac{6}{3}$
 $3x-18=6$
 $3x=24$
 $x=8$

8) $\frac{4+6x}{21} = \frac{8}{6}$
 $6(4+6x) = 168$
 $24+36x = 168$
 $36x = 144$
 $x = 4$

9) $\frac{2x-6}{6} = \frac{10}{15}$
 $15(2x-6) = 6 \cdot 10$
 $30x-90 = 60$
 $+90 +90$
 $30x = 150$
 $x = 5$

10) $\frac{9}{6} = \frac{4x-7}{14}$
 $9 \cdot 14 = 6(4x-7)$
 $126 = 24x-42$
 $+42 +42$
 $168 = 24x$
 $7 = x$

Find the missing length indicated.

11)

$\frac{25}{x} = \frac{x}{9}$
 $x^2 = 25 \cdot 9$
 $x^2 = \sqrt{225}$
 $x = 15$

12)

$\frac{36}{x} = \frac{x}{64}$

~~$\frac{36}{x} = \frac{64}{x}$
 $36x = 64x$
 $\sqrt{36} = \sqrt{64}$~~

13)

$\frac{x}{48} = \frac{48}{64}$
 $64x = 48 \cdot 48$
 $\frac{64x}{64} = \frac{2304}{64}$
 $x = 36$

14)

$\frac{x}{60} = \frac{60}{36}$
 $36x = 3600$
 $x = 100$

15)

$\frac{x}{15} = \frac{15}{9}$
 $15 \cdot 15 = 9x$
 $\frac{225}{9} = \frac{9x}{9}$
 $25 = x$

16)

$\frac{x}{12} = \frac{12}{9}$
 $9x = 144$
 $x = 16$