

Solve each proportion.

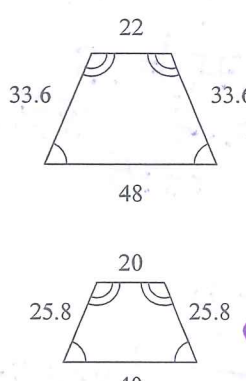
1) $\frac{7}{8} = \frac{6}{x}$ $7x = 48$
 $x \approx 6.86$

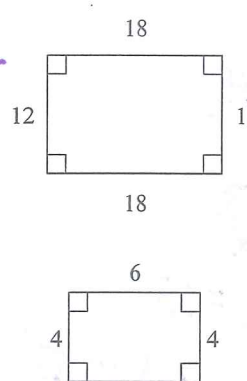
2) $\frac{v+7}{8} = \frac{7}{6}$ $6(v+7) = 56$
 $6v + 42 = 56$ $6v = 14$ $v \approx 2.3$
 OR $v = \frac{14}{6}$

3) $\frac{8}{5} = \frac{r}{r-9}$ $8(r-9) = 5r$ $r = 24$
 $8r - 72 = 5r$
 $-72 = -3r$

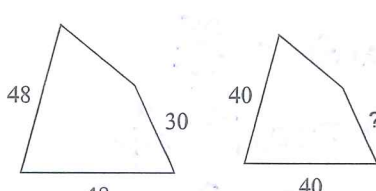
4) $\frac{5}{2} = \frac{v+1}{v+4}$ $5(v+4) = 2(v+1)$
 $5v + 20 = 2v + 2$ $3v = -18$ $v = -6$

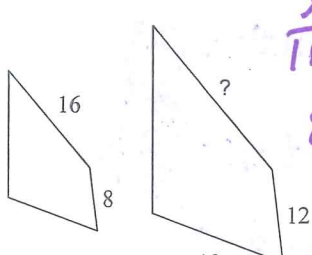
Defend whether the polygons are similar or not similar.

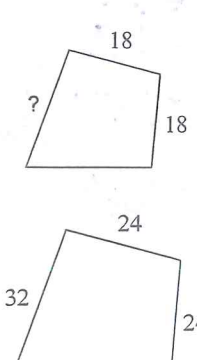
5)  $\frac{22}{20} = 1.1$
 $\frac{33.6}{25.8} = 1.3$
 Ratios between corresponding sides are not equal. **Not similar**

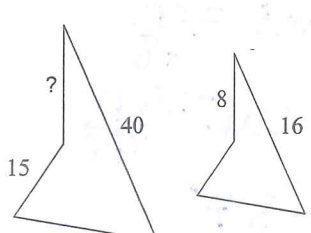
6)  $\frac{18}{6} = 3$
 $\frac{12}{4} = 3$
 Equal ratios. **Similar!**

The polygons in each pair are similar. Find the missing side length.

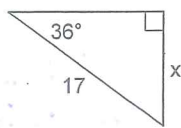
7)  $\frac{40}{48} = \frac{x}{30}$
 $48x = 40(30)$
 $x = \frac{1200}{48}$
 $x = 25$

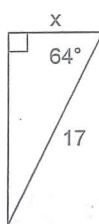
8)  $\frac{x}{16} = \frac{12}{8}$
 $8x = 192$
 $x = 24$

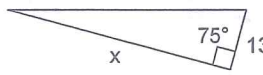
9)  $\frac{x}{32} = \frac{18}{24}$
 $24x = 576$
 $x = 24$

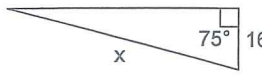
10)  $\frac{x}{8} = \frac{40}{16}$
 $16x = 320$
 $x = 20$

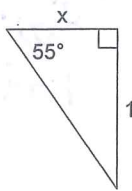
Find the missing side. Round to the nearest tenth.

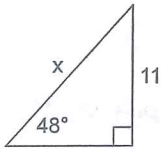
11)  $\sin 36 = \frac{x}{17}$
 $x = 17(\sin 36)$
 $x \approx 10.0$

12)  $\cos 64 = \frac{x}{17}$
 $x = 17(\cos 64)$
 $x \approx 7.5$

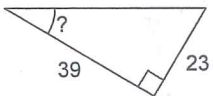
13)  $x \approx 48.5$
 $\tan 75 = \frac{x}{13}$
 $x = 13(\tan 75)$

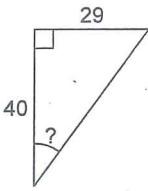
14)  $\cos 75 = \frac{16}{x}$
 $x(\cos 75) = 16$
 $x = \frac{16}{\cos 75}$ $x \approx 61.8$

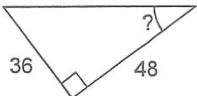
15)  $\tan 55 = \frac{18}{x}$
 $x(\tan 55) = 18$
 $x = \frac{18}{\tan 55} \approx 12.6$

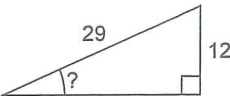
16)  $\sin 48 = \frac{11}{x}$
 $x = \frac{11}{\sin 48}$ $x \approx 14.8$

Find the measure of the indicated angle to the nearest degree.

17)  $\tan \theta = \frac{23}{39}$
 $\theta = \tan^{-1}\left(\frac{23}{39}\right)$
 $\theta \approx 31^\circ$

18)  $\tan \theta = \frac{29}{40}$
 $\theta = \tan^{-1}\left(\frac{29}{40}\right)$
 $\theta \approx 36^\circ$

19)  $\tan \theta = \frac{36}{48}$
 $\theta = \tan^{-1}\left(\frac{36}{48}\right)$
 $\theta \approx 37^\circ$

20)  $\sin \theta = \frac{12}{29}$
 $\theta = \sin^{-1}\left(\frac{12}{29}\right)$
 $\theta \approx 24^\circ$

- 1) {6.85}
 5) not similar
 9) 24
 13) 48.5
 17) 31°

- 2) {2.33}
 6) similar
 10) 20
 14) 61.8
 18) 36°

- 3) {24}
 7) 25
 11) 10.0
 15) 12.6
 19) 37°

- 4) {-6}
 8) 24
 12) 7.5
 16) 14.8
 20) 24°