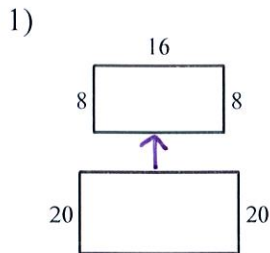
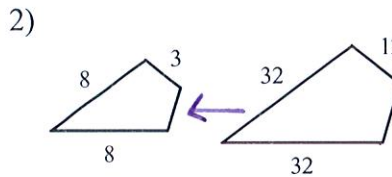


3.10 - Test 3 REVIEW

The polygons in each pair are similar. Find the scale factor large to small.



$$\frac{8}{20} = \boxed{\frac{2}{5}}$$

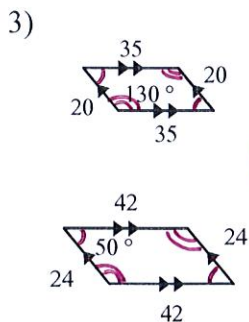


old new

$$K = \frac{\text{new}}{\text{old}}$$

$$\frac{8}{32} = \boxed{\frac{1}{4}}$$

State if the polygons are similar.

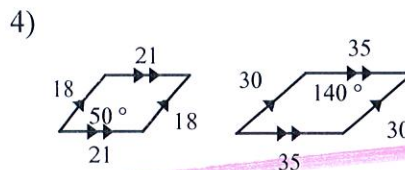


angles are \cong ✓

$$\frac{20}{24} = \frac{20}{24} = \frac{35}{42} = \frac{35}{42}$$

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

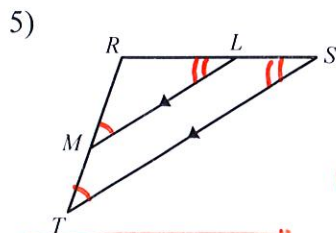
yes!



angles are not \cong X

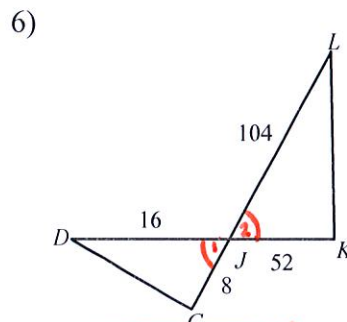
not similar

State if the triangles in each pair are similar. If so, state how you know they are similar and complete the similarity statement.



$\angle M \cong \angle T$
 $\angle L \cong \angle S$
 (Corresponding \angle s)
 AA ~

$\triangle RST \sim \triangle RLM$



$\angle 1 = \angle 2 \checkmark$

$$\frac{8}{52} = \frac{16}{104}$$

$$\frac{2}{13} = \frac{2}{13} \checkmark$$

SAS ~

$\triangle JKL \sim \triangle JCD$

7)

$\angle 1 \cong \angle 2$
 $\frac{70}{61} \neq \frac{91}{79}$
 not \sim

$\Delta UVW \sim$ ~~X~~

8)

$\frac{10}{24} = \frac{15}{36} = \frac{20}{48}$
 $\frac{5}{12} = \frac{5}{12} = \frac{5}{12} \checkmark$

$\Delta PQR \sim \Delta TUV$

$SSS \sim$

Solve for x . The triangles in each pair are similar.

9) $\Delta WVU \sim \Delta WLM$

$\frac{x}{14} = \frac{16}{28}$

$x = 8$

10) $\Delta PQR \sim \Delta PVW$

$\frac{9x+6}{40} = \frac{18}{12}$

$x = 6$

11) $\Delta SRQ \sim \Delta SGF$

$\frac{10x-2}{55} = \frac{40}{25}$

$x = 9$

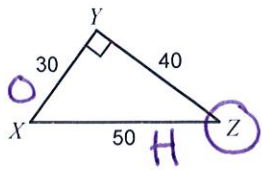
12) $\Delta RST \sim \Delta HGF$

$\frac{2x-12}{20} = \frac{33}{55}$

$x = 12$

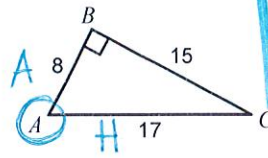
Find the value of each trigonometric ratio.

13) $\sin Z$



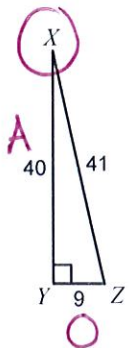
$$\frac{30}{50} = \frac{3}{5}$$

14) $\cos A$



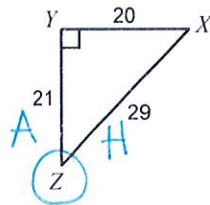
$$\frac{8}{17}$$

15) $\tan X$



$$\frac{9}{40}$$

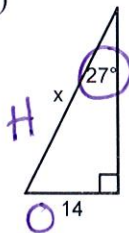
16) $\cos Z$



$$\frac{21}{29}$$

Find the missing side. Round to the nearest tenth.

17)



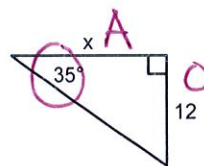
$$\frac{\sin 27}{1} = \frac{14}{x}$$

$$x \cdot \sin 27 = 14$$

$$\frac{x \cdot \sin 27}{\sin 27} = \frac{14}{\sin 27}$$

$$30.8$$

18)



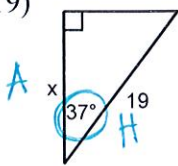
$$\frac{\tan 35}{1} = \frac{12}{x}$$

$$x \cdot \tan 35 = 12$$

$$\frac{x \cdot \tan 35}{\tan 35} = \frac{12}{\tan 35}$$

$$17.1$$

19)

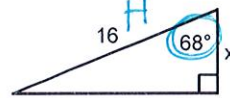


$$\frac{\cos 37}{1} = \frac{x}{19}$$

$$19 \cdot \cos 37 = x$$

$$15.2$$

20)



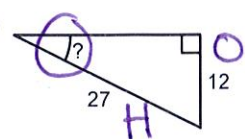
$$\frac{\cos 68}{1} = \frac{x}{16}$$

$$16 \cdot \cos 68 = x$$

$$6 = x$$

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

21)

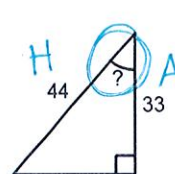


$$\sin X = \frac{12}{27}$$

$$X = \sin^{-1}\left(\frac{12}{27}\right)$$

$$26.4$$

22)

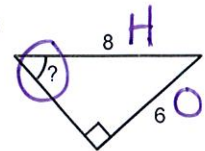


$$\cos X = \frac{33}{44}$$

$$X = \cos^{-1}\left(\frac{33}{44}\right)$$

$$41.4$$

23)

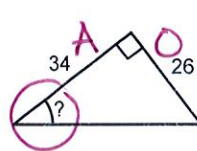


$$\sin X = \frac{6}{8}$$

$$X = \sin^{-1}\left(\frac{6}{8}\right)$$

$$48.6$$

24)



$$\tan X = \frac{26}{34}$$

$$X = \tan^{-1}\left(\frac{26}{34}\right)$$

$$37.4$$

25. The legs of a right triangle are a length of 9 and 12. How long is the hypotenuse?

$$9^2 + 12^2 = c^2 \rightarrow c = 15$$

26. A right triangle has a hypotenuse length of 26 and a leg length of 24. How long is the other leg?

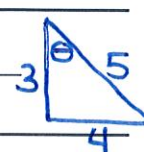
$$a^2 + 24^2 = 26^2 \rightarrow a = 10$$

27. $\sin \theta = \frac{5}{12} \rightarrow \cos(90 - \theta) = \frac{5}{12}$

28. $\cos \theta = \frac{3}{7} \rightarrow \sin(90 - \theta) = \frac{3}{7}$

29. $\tan \theta = \frac{7}{24} \rightarrow \tan(90 - \theta) = \frac{24}{7}$

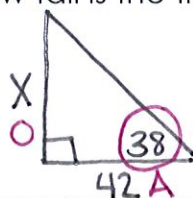
30. $\tan \theta = \frac{4}{3} \rightarrow \sin(90 - \theta) = \frac{3}{5}$



31. $\sin 12 = \cos 78$

32. $\cos 53 = \sin 37$

33. A tree casts a shadow that is 42 feet long. The angle of elevation to the top of the tree is 38° . How tall is the tree?



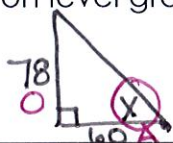
$$\tan 38 = \frac{x}{42}$$

$$42 \cdot \tan 38 = x$$

↳ always at the bottom!

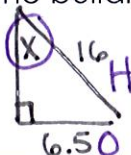
$$x = 32.8$$

34. A radio tower is 78 feet tall. Find the angle of elevation to the top of the tower at a point on level ground 60 feet from its base.



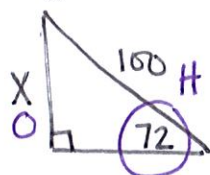
$$\tan X = \frac{78}{60} \rightarrow X = \tan^{-1}\left(\frac{78}{60}\right) = 52.4$$

35. A 16-foot ladder rests against a wall so that the base of the ladder is 6.5 feet from the base of the building. What angle does the ladder make with the wall?



$$\sin X = \frac{6.5}{16} \rightarrow X = \sin^{-1}\left(\frac{6.5}{16}\right) = 24$$

36. A girl flying a kite lets out 100 feet of string that makes an angle of elevation of 72° with his line of sight. Find how high the kite is above the ground.

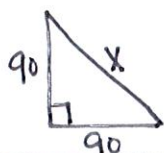


$$\sin 72 = \frac{x}{100}$$

$$100 \sin 72 = x$$

$$x = 95.1$$

37. On a baseball field, it is 90 feet from home plate to 1st base and 90 feet from 1st base and 2nd base. How far is it from home plate to 2nd base?



$$90^2 + 90^2 = x^2 \rightarrow x = 90\sqrt{2} = 127.3$$