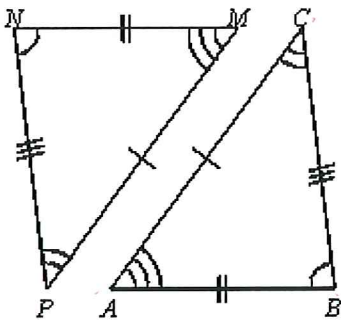


Geometry B Final Exam Review 2016-17

1 If \overline{BCDE} is congruent to \overline{OPQR} , then \overline{CD} is congruent to ?

\overline{PQ}

2 $\angle BAC \cong$?



$\angle NMP$
or
 $\angle PMN$
or
 $\angle M$

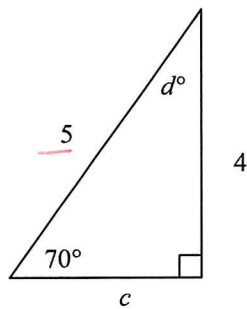
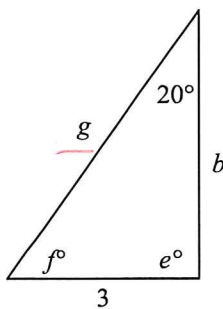
3 Given $\triangle QRS \cong \triangle TUV$, $QS = 5v + 4$, and $TV = 9v - 4$, find the length of QS and TV .

$QS = TV$

$5v + 4 = 9v - 4$
 $4 = 4v - 4$
 $8 = 4v$
 $v = 2$

$QS = TV = 5(2) + 4$
 $= 14$

4 The two triangles are congruent as suggested by their appearance. Find the value of g . The diagrams are not to scale.

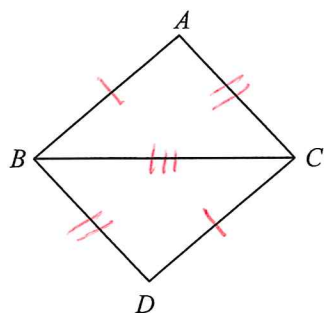


$g = 5$

5 Justify the last two steps of the proof.

Given: $\overline{AB} \cong \overline{DC}$ and $\overline{AC} \cong \overline{DB}$

Prove: $\triangle ABC \cong \triangle DCB$



Proof:

1. $\overline{AB} \cong \overline{DC}$

1. Given

2. $\overline{AC} \cong \overline{DB}$

2. Given

3. $\overline{BC} \cong \overline{CB}$

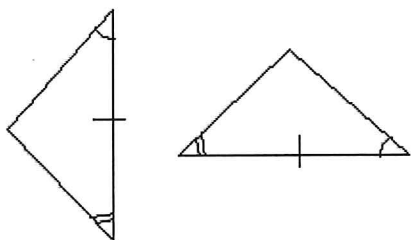
3. ? Reflexive

4. $\triangle ABC \cong \triangle DCB$

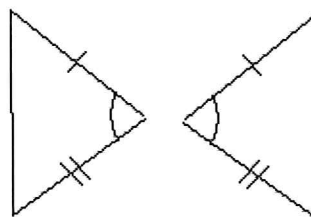
4. ? SSS

6 Which pair of triangles is congruent by ASA?

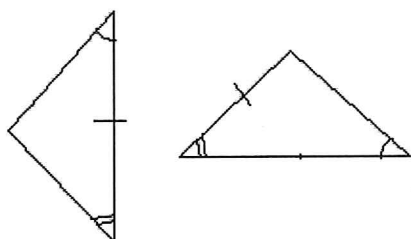
A



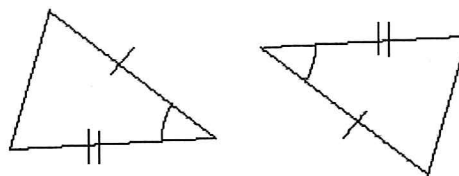
C



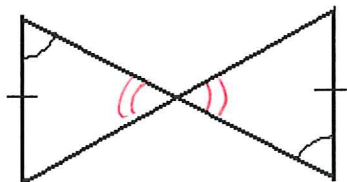
~~**B**~~



D



7 Can you use the SAS Postulate, the AAS Theorem, or both to prove the triangles congruent?

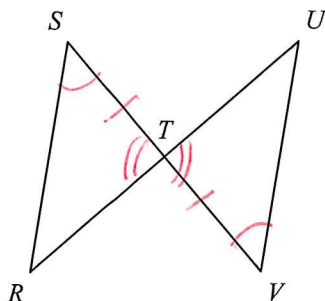


- A either SAS or AAS
B AAS only
 C SAS only
 D neither

8 Supply the missing reasons to complete the proof.

Given: $\angle S \cong \angle V$ and $\overline{ST} \cong \overline{VT}$

Prove: $\overline{RT} \cong \overline{UT}$



Statement	Reasons
1. $\angle S \cong \angle V$ and $\overline{ST} \cong \overline{VT}$	1. Given
2. $\angle RTS \cong \angle UTV$	2. Vertical angles are congruent.
3. $\triangle RTS \cong \triangle UTV$	3. <u>?</u> ASA
4. $\overline{RT} \cong \overline{UT}$	4. <u>?</u> CPCTC

- A SAS; CPCTC
 B ASA; Substitution
C ASA; CPCTC
 D AAS; CPCTC

9 Given $\triangle ABC \cong \triangle PQR$, $m\angle B = 5v + 2$, and $m\angle Q = 9v - 6$, find $m\angle B$ and $m\angle Q$.

$$\angle B \cong \angle Q$$

$$5v + 2 = 9v - 6$$

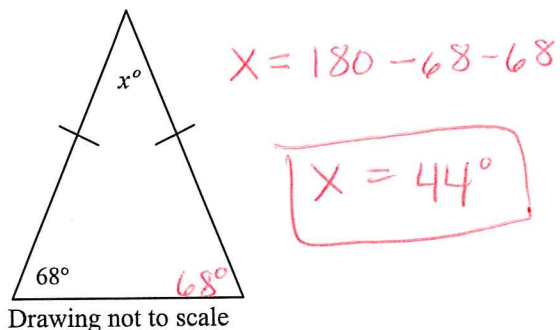
$$2 = 4v - 6$$

$$8 = 4v$$

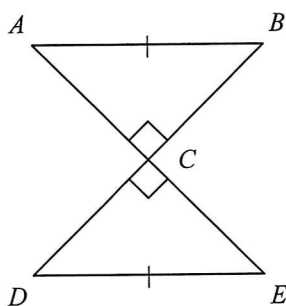
$$v = 2$$

$$\begin{aligned} \angle B = \angle Q &= 5(2) + 2 \\ &= \boxed{12} \end{aligned}$$

10 What is the value of x ?



11 What additional information will allow you to prove the triangles congruent by the HL Theorem?

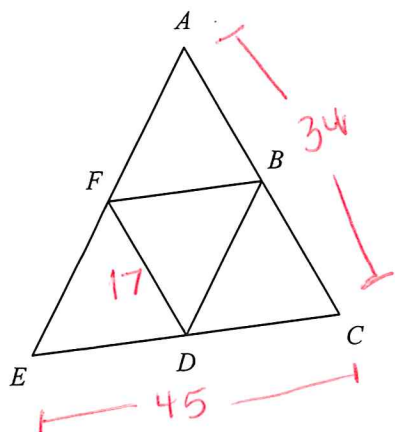


need a pair of congruent legs

- A $\angle A \cong \angle E$
- B $m\angle BCE = 90$

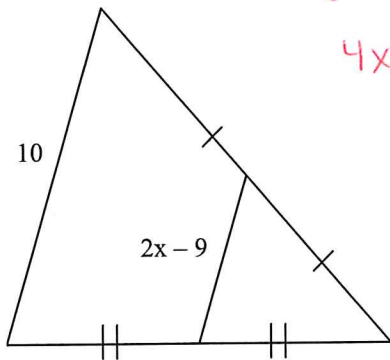
- C $\overline{AC} \cong \overline{DC}$
- D $\overline{AC} \cong \overline{BD}$

12 Points B , D , and F are midpoints of the sides of $\triangle ACE$. $EC = 45$ and $DF = 17$. Find AC . The diagram is not to scale.



$AC = 34$

13 Find the value of x .



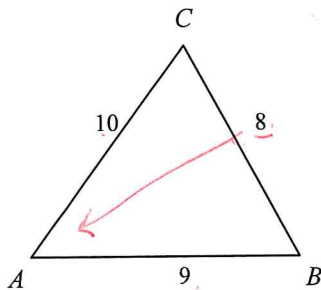
$$2(2x-9) = 10$$

$$4x - 18 = 10$$

$$4x = 28$$

$$x = 7$$

14 Name the smallest angle of $\triangle ABC$. The diagram is not to scale.



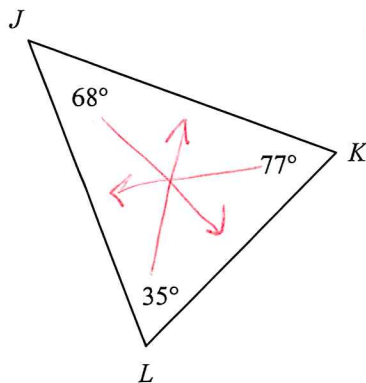
A $\angle C$

B $\angle B$

C $\angle A$

D Two angles are the same size and smaller than the third.

15 List the sides in order from shortest to longest. The diagram is not to scale.



JK, KL, JL

16 Which three lengths CANNOT be the lengths of the sides of a triangle?

- A 18 m, 7 m, 11 m $7+11 > 18$ NO C 12 m, 10 m, 15 m $12+10 > 15$ ✓
 B 8 m, 10 m, 11 m $8+10 > 11$ ✓ D 21 m, 18 m, 13 m $18+13 > 21$ ✓

17 Two sides of a triangle have lengths 7 and 15. Which inequalities represent the possible lengths for the third side, x ?

- A $8 < x < 22$ C $8 < x < 7$
 B $8 < x < 15$ D $7 < x < 15$
- $15-7 < x < 15+7$
 $8 < x < 22$

18 The measure of two complementary angles are in the ratio 1 : 9. What are the degree measures of the two angles?

$1x + 9x = 90$ $x = 9$ $9^\circ, 81^\circ$ $1(9) = 9$
 $10x = 90$ $9(9) = 81$

19 The measures of the angles of a triangle are in the extended ratio 4 : 5 : 9. What is the measure of the smallest angle?

$4x + 5x + 9x = 180$ 40
 $18x = 180$ $x = 10$

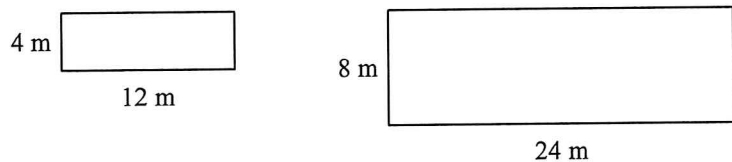
What is the solution of each proportion? $x = 10$

20 ~~$\frac{7}{a} = \frac{28}{36}$~~ $a = 9$

21 ~~$\frac{3y-8}{12} = \frac{y}{5}$~~ $y = \frac{40}{3}$

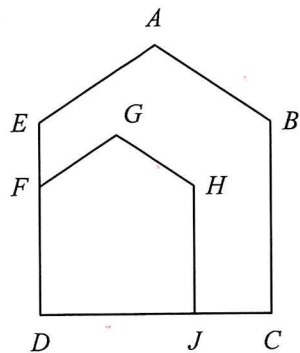
$5(3y-8) = 12y$
 $15y - 40 = 12y$
 $-40 = -3y$

22 The two rectangles are similar. Which is the correct proportion for corresponding sides?



- A $\frac{12}{8} = \frac{24}{4}$ B $\frac{4}{8} = \frac{12}{24}$ C $\frac{12}{4} = \frac{8}{24}$ D $\frac{4}{12} = \frac{24}{8}$

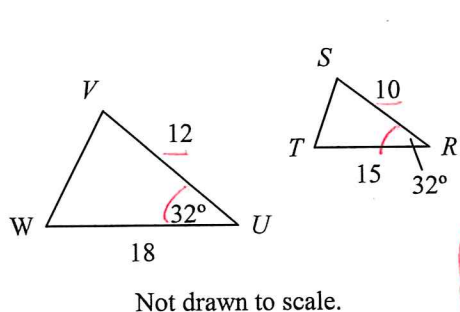
23 $\underline{ABCDE} \sim \underline{GHJDF}$. Complete the statements.



1. $\angle H \cong \blacksquare \angle B$

2. $\frac{GH}{DJ} = \frac{AB}{\blacksquare DC}$

Are the polygons similar? If they are, write a similarity statement and give the scale factor.



$$\frac{12}{10} = \frac{18}{15}$$

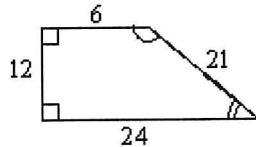
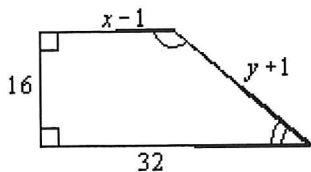
$$\frac{6}{5} = \frac{6}{5}$$

Similar by SAS ~
 scale factor $\frac{6}{5}$ or $\frac{5}{6}$
 $\triangle UVW \sim \triangle TRS$

24

The polygons are similar, but not necessarily drawn to scale. Find the value of x.

25



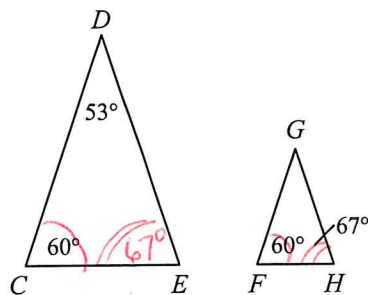
~~$$\frac{(x-1)}{6} = \frac{16}{21}$$~~

$$12x - 12 = 96$$

$$12x = 108$$

$$\boxed{x = 9}$$

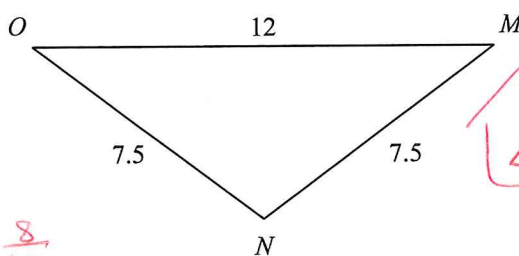
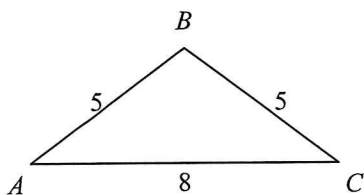
26 Are the two triangles similar? How do you know?



Yes; AA~

State whether the triangles are similar. If so, write a similarity statement and the postulate or theorem you used.

27

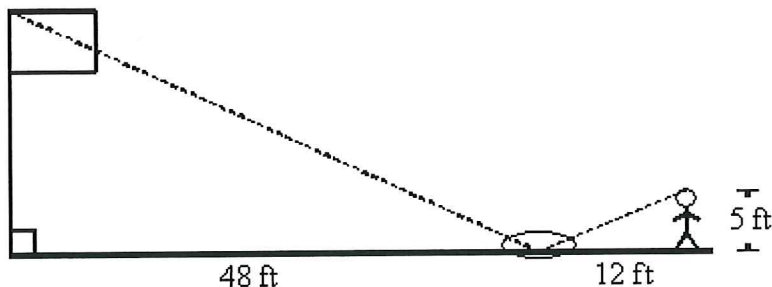


Yes; SSS~
 $\triangle ABC \sim \triangle MNO$

$$\frac{5}{7.5} \quad \frac{5}{7.5} \quad \frac{8}{12}$$

$$\frac{2}{3} \quad \frac{2}{3} \quad \frac{2}{3} \checkmark$$

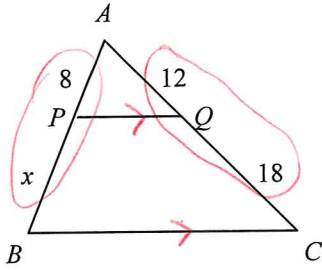
28 Michele wanted to measure the height of her school's flagpole. She placed a mirror on the ground 48 feet from the flagpole, then walked backwards until she was able to see the top of the pole in the mirror. Her eyes were 5 feet above the ground and she was 12 feet from the mirror. Using similar triangles, find the height of the flagpole to the nearest tenth of a foot.



$$\frac{5}{x} = \frac{12}{48}$$

$x = 20$

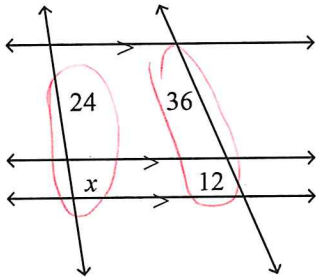
29 What is the value of x , given that $\overline{PQ} \parallel \overline{BC}$?



$$\frac{8}{x} = \frac{12}{18}$$

$$x = 12$$

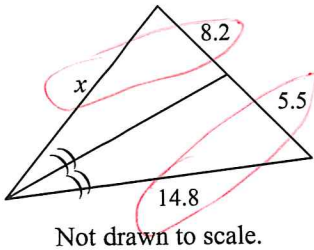
30 What is the value of x ?



$$\frac{24}{x} = \frac{36}{12}$$

$$x = 8$$

31 What is the value of x to the nearest tenth?

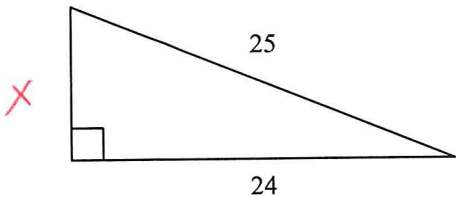


$$\frac{x}{8.2} = \frac{14.8}{5.5}$$

$$x = 22.1^\circ$$

Find the length of the missing side. The triangle is not drawn to scale.

32



$$a^2 + b^2 = c^2$$

$$x^2 + 24^2 = 25^2$$

$$x^2 + 576 = 625$$

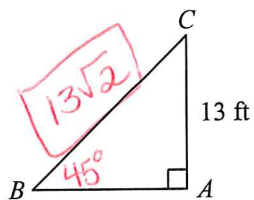
$$x^2 = 49$$

$$x = 7$$

$$x = \sqrt{25^2 - 24^2} \quad \text{or}$$

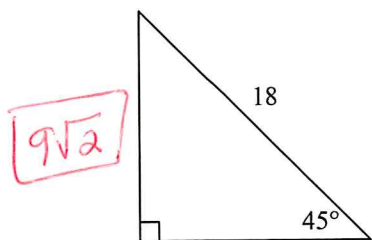
$$x = 7$$

- 33 In triangle ABC , $\angle A$ is a right angle and $m\angle B = 45^\circ$. Find BC . If your answer is not an integer, leave it in simplest radical form.



Not drawn to scale

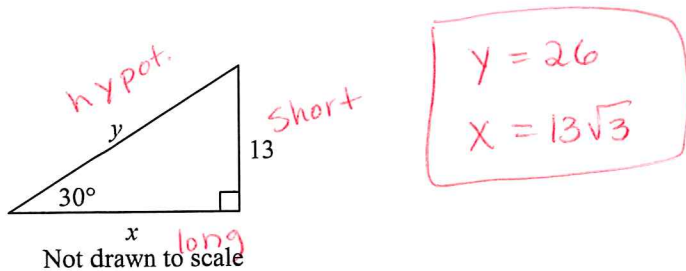
- 34 Find the length of the leg. If your answer is not an integer, leave it in simplest radical form.



Not drawn to scale

Find the value of the variable(s). If your answer is not an integer, leave it in simplest radical form.

35



Not drawn to scale

- 36 Find the missing value to the nearest hundredth.

$$\tan \blacksquare = 52$$

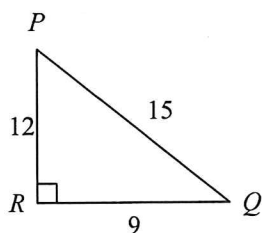
$$88.90^\circ$$

- 37 Find the missing value to the nearest hundredth.

$$\sin \blacksquare = \frac{10}{16}$$

$$38.68^\circ$$

- 38 Write the tangent ratios for $\angle P$ and $\angle Q$.

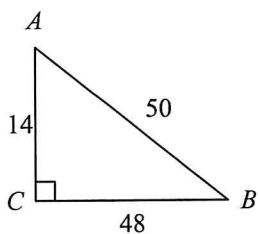


Not drawn to scale

$$\tan P = \frac{9}{12}$$

$$\tan Q = \frac{12}{9}$$

- 39 Write the ratios for $\sin A$ and $\cos A$.



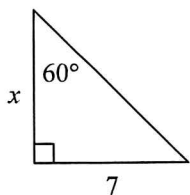
Not drawn to scale

$$\sin A = \frac{48}{50}$$

$$\cos A = \frac{14}{50}$$

Use a trigonometric ratio to find the value of x . Round your answer to the nearest tenth.

40



Not drawn to scale

~~$$\tan 60^\circ = \frac{x}{7}$$~~

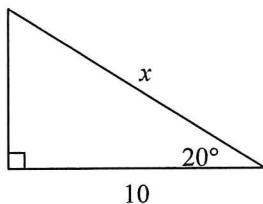
$$x \tan 60^\circ = 7$$

$$x = \frac{7}{\tan 60^\circ}$$

$$x = 4.0$$

Find the value of x . Round to the nearest tenth.

41



Not drawn to scale

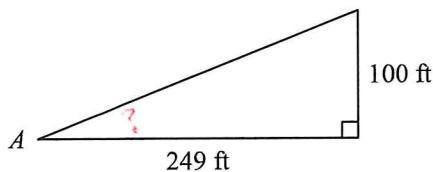
$$\cancel{\cos 20 = \frac{10}{x}}$$

$$x \cos 20 = 10$$

$$x = \frac{10}{\cos 20}$$

$$x = 10.6$$

- 42 A large totem pole in the state of Washington is 100 feet tall. At a particular time of day, the totem pole casts a 249-foot-long shadow. Find the measure of $\angle A$ to the nearest degree.

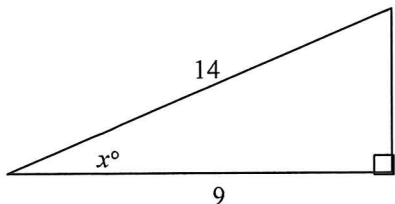


$$\tan A = \frac{100}{249}$$

$$\angle A = 22^\circ$$

Find the value of x . Round to the nearest degree.

43

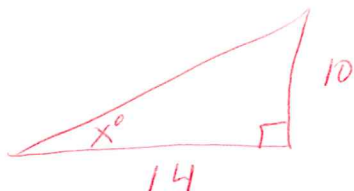


Not drawn to scale

$$\cos x = \frac{9}{14}$$

$$x = 50^\circ$$

- 44 Find the angle of elevation of the sun from the ground when a tree that is 10 yards tall casts a shadow 14 yards long. Round to the nearest degree.

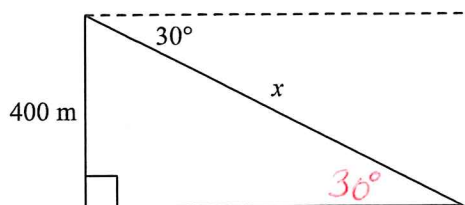


$$\tan x = \frac{10}{14}$$

$$x = 36^\circ$$

Find the value of x . Round the length to the nearest tenth.

45



Not drawn to scale

$$\sin 30 = \frac{400}{x}$$

$$x \sin 30 = 400$$

$$x = \frac{400}{\sin 30}$$

$$x = \cancel{400} 800 \text{ m}$$