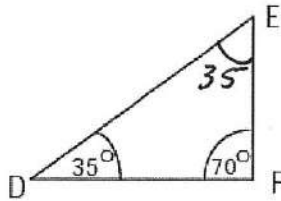
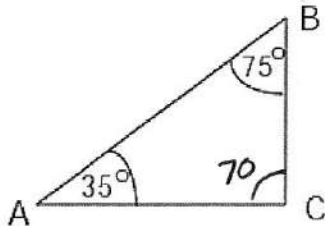


1. State whether or not the following triangles are similar and support your answer.



Yes corresponding angles are  $\cong$ .

2. In the figure given to the left,  $\triangle XYZ$  is similar to  $\triangle BCD$ .

a. Find the value of XZ.

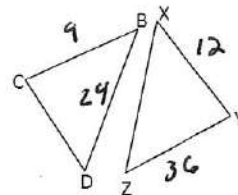
$$\frac{9}{12} = \frac{24}{X} \quad XZ = 32$$

$$9X = 288$$

b. Find the value of CD

$$\frac{9}{12} = \frac{X}{36} \quad CD = 27$$

$$12X = 324$$



BC=9

XY=12

BD=24

ZY=36

3. Looking at the triangles in the figure on the right:

a) Are the two triangles similar? Yes, AA

b) What is the length of QT?

c) If PT is 15 cm, what is the length of RT?

$$b) \frac{4}{3} = \frac{4+x}{9}$$

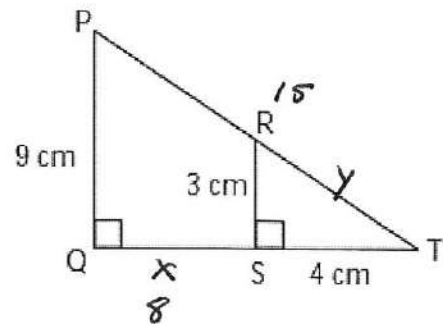
$$36 = 3(4+x)$$

$$36 = 12 + 3x$$

$$24 = 3x$$

$$x = 8$$

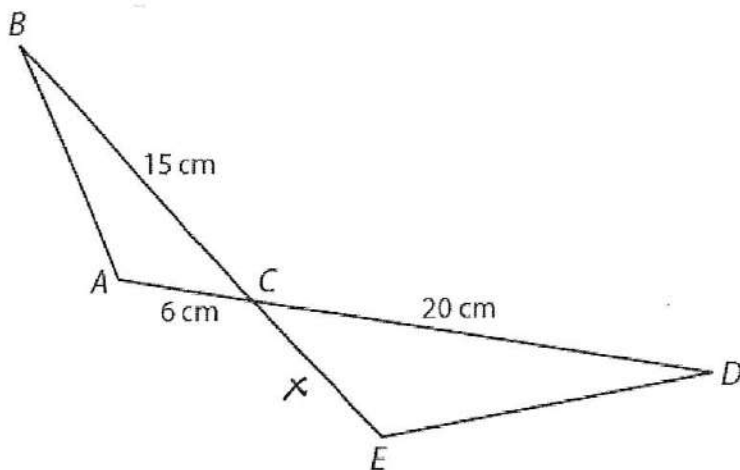
$$QT = 8 + 4 = 12 \text{ cm}$$



$$\frac{4}{3} = \frac{12}{15}$$

$$12y = 60$$

$$y = 5$$



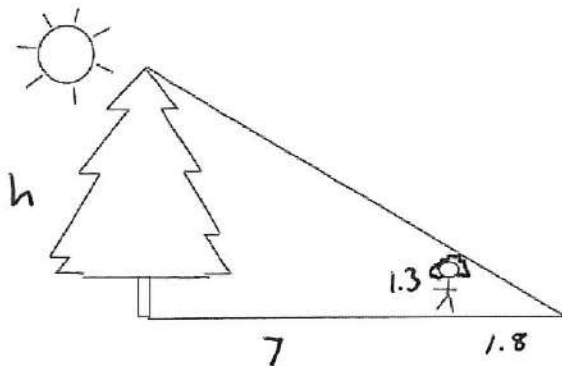
4. In the diagram to the left,  $\triangle ACB \sim \triangle ECD$ . Find the length of  $\overline{CE}$ .

$$\frac{6}{x} = \frac{15}{20}$$

$$15x = 120$$

$$x = 8$$

5. Tonya is 1.3 meters tall. She stands 7 meters in front of a tree and casts a shadow 1.8 meters long. How tall is the tree?

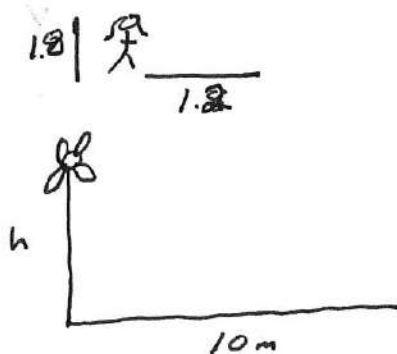


$$\frac{1.3}{h} = \frac{1.8}{7.8}$$

$$1.8h = 11.44$$

$$h = 6.36 \text{ m}$$

6. Stephanie casts a shadow of 1.2 m and she is 1.8 m tall. A wind turbine casts a shadow of 10 m at the same time that Stephanie measured her shadow. Draw a diagram of this situation and then calculate how tall the wind turbine is.



$$\frac{1.2}{1.8} = \frac{10}{h}$$
~~$$1.8h = 12$$~~
~~$$h = 6.66 \text{ m}$$~~

$$1.2h = 18$$

$$h = 15 \text{ m}$$

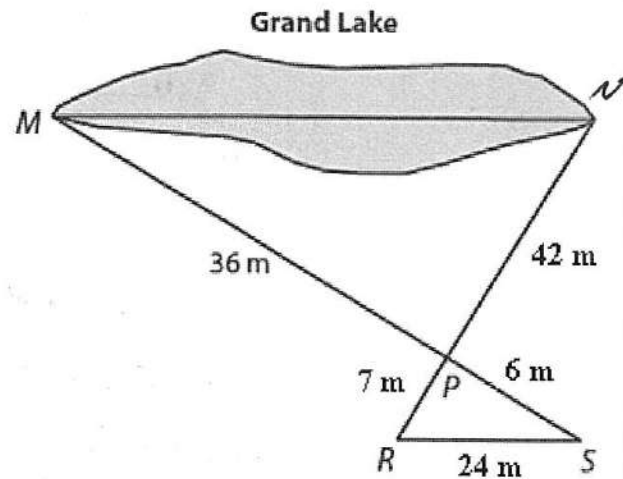
7. Maya needed to determine the longest distance across Grand Lake. She made the measurements as shown in the diagram.

a. Provide an argument to justify that  $\triangle NPM \sim \triangle RPS$ .

$\angle MPN \cong \angle RPS$  because of Vertical  $\angle$ 's.

The sides are in the same Ratio  $\frac{7}{42} = \frac{6}{36}$ .

So  $\triangle NPM \sim \triangle RPS$  by SAS.

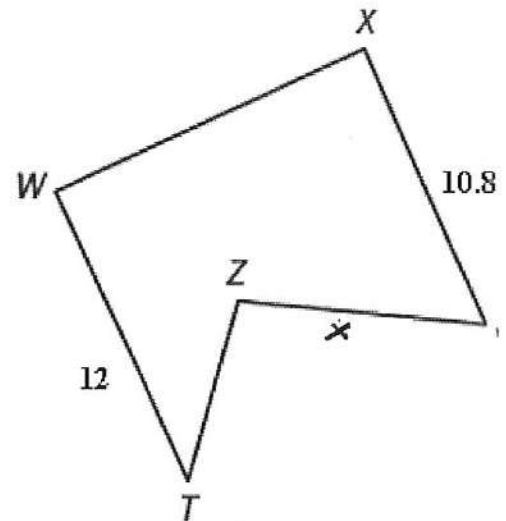
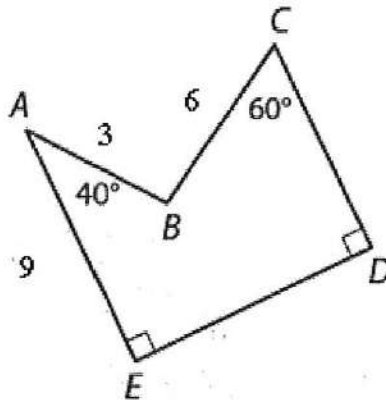


b. Determine  $MN$ , the longest distance across Grand Lake.

$$\frac{6}{36} = \frac{24}{MN} \quad x = 144 \text{ m}$$

$$6x = 864$$

8. In the diagrams below, pentagon  $ABCDE \sim$  pentagon  $TZYXW$ .



a. Use the information provided to determine each measure.

i.  $m\angle T = 40^\circ$

ii.  $ZY = 8$        $\frac{9}{12} = \frac{6}{x}$

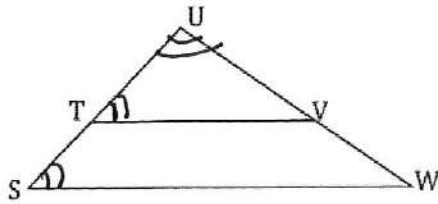
iii.  $CD = 8.1$        $\frac{9}{12} = \frac{CD}{10.8}$

b. What is the scale factor from pentagon  $TZYXW$  to pentagon  $ABCDE$ ? Explain your reasoning.

$k = \frac{9}{12} = \frac{3}{4}$  Figure is getting smaller so  $k < 1$ .

9.

Given:  $\angle S \cong \angle UTV$



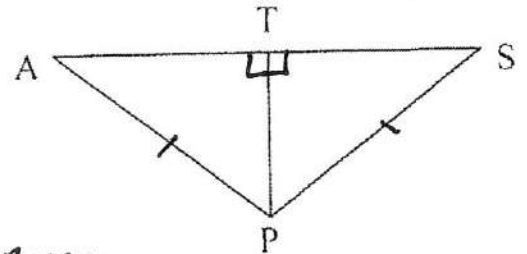
Prove:  $\triangle SUW \sim \triangle TUV$

Statement	Reason
1) $\angle S \cong \angle UTV$	1) Given
2) $\angle U \cong \angle U$	2) Reflexive property
3) $\triangle SUW \sim \triangle TUV$	3) AA

10.

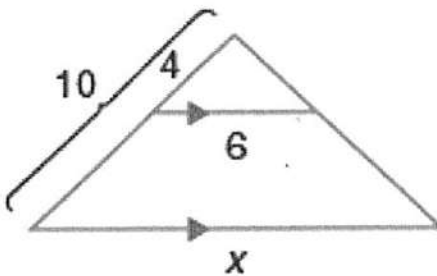
Given:  $\overline{TP} \perp \overline{AS}$ ,  $\overline{AP} \cong \overline{SP}$

Prove:  $\triangle ATP \cong \triangle STP$



Statement	Reason
1) $\overline{TP} \perp \overline{AS}$ $\overline{AP} \cong \overline{SP}$	1) Given
2) $\overline{TP} \cong \overline{TP}$	2) Reflexive Property
3) $\triangle ATP \cong \triangle STP$	3) HL

11. Solve for x.

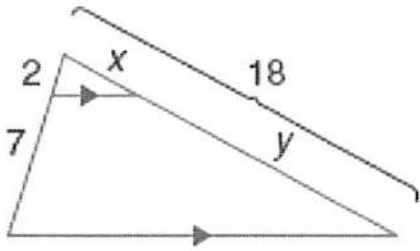


$$\frac{4}{6} = \frac{10}{x}$$

$$4x = 60$$

$$x = 15$$

12. Solve for x and y.



$$\frac{2}{9} = \frac{x}{18}$$

$$9x = 36$$

$$x = 4$$

$$y = 18 - 4$$

$$y = \del{18} 14$$

OR

$$\frac{2}{4} = \frac{7}{y}$$

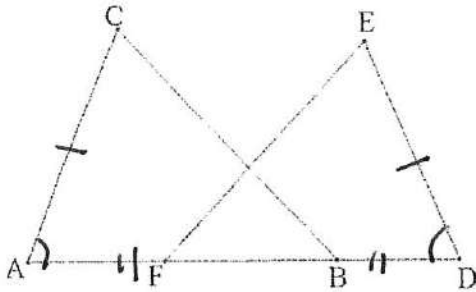
$$2y = 28$$

$$y = 14$$

13. Given:  $\overline{AC} \cong \overline{DE}$ ;  $\overline{AB} \cong \overline{DF}$ ;

$$\angle CAB \cong \angle EDF$$

Prove:  $\overline{CB} \cong \overline{EF}$



Statement	Reason
1) $\overline{AC} \cong \overline{DE}$ $\overline{AB} \cong \overline{DF}$ $\angle CAB \cong \angle EDF$	1) Given
2) $\triangle CAB \cong \triangle EDF$	2) SAS
3) $\overline{CB} \cong \overline{EF}$	3) CPCTC

