

Name: Key

Period: _____

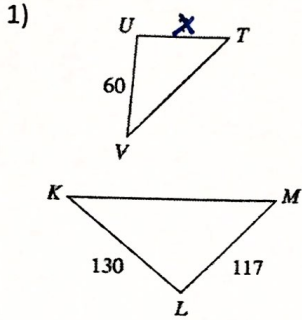
Checkpoint 6C

Integrated Math 2

Answer the questions thoroughly including any necessary math or explanations.

Each pair of given triangles are similar. Determine the missing length. Show your work.

$\triangle TUV \sim \triangle MLK$

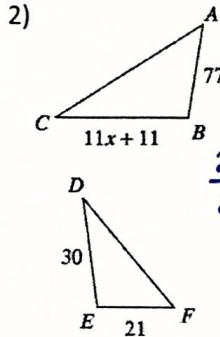


$$\frac{x}{117} = \frac{60}{130}$$

$$\frac{130x}{130} = \frac{7020}{130}$$

$$\boxed{x = 54}$$

$\triangle ABC \sim \triangle FED$



$$\frac{231x}{231} = \frac{2079}{231}$$

$$\boxed{x = 9}$$

$$\frac{11x+11}{30} = \frac{77}{21}$$

$$21(11x+11) = 2310$$

$$231x + 231 = 2310$$

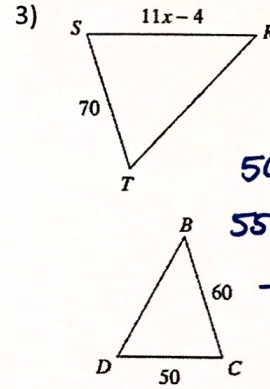
$$-231 \quad -231$$

$$\hline 231x = 2079$$

$$\frac{231x}{231} = \frac{2079}{231}$$

$$\boxed{x = 9}$$

$\triangle RST \sim \triangle BCD$



$$\frac{11x-4}{60} = \frac{70}{50}$$

$$50(11x-4) = 4200$$

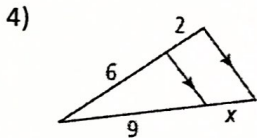
$$550x - 200 = 4200$$

$$+200 \quad +200$$

$$\hline 550x = 4400$$

$$\frac{550x}{550} = \frac{4400}{550}$$

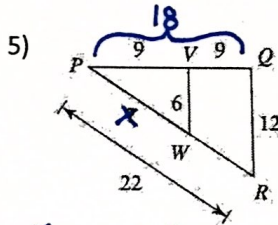
$$\boxed{x = 8}$$



$$\frac{x}{2} = \frac{9}{6}$$

$$\frac{6x}{6} = \frac{18}{6}$$

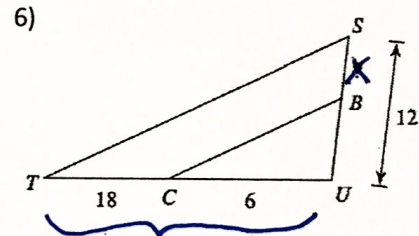
$$\boxed{x = 3}$$



$$\frac{x}{9} = \frac{22}{18}$$

$$\frac{18x}{18} = \frac{198}{18}$$

$$\boxed{x = 11}$$



$$\frac{x}{12} = \frac{6}{24}$$

$$\frac{24x}{24} = \frac{216}{24}$$

$$\boxed{x = 9}$$

Use the diagram to fill in the proportions.

7) $\frac{a}{c} = \frac{\boxed{d}}{f}$

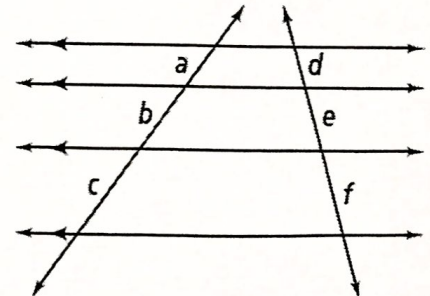
8) $\frac{f}{e} = \frac{c}{\boxed{b}}$

9) $\frac{\boxed{b}}{c} = \frac{e}{f}$

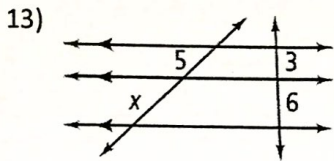
10) $\frac{a}{\boxed{d}} = \frac{b}{e}$

11) $\frac{a}{b} = \frac{\boxed{d}}{e}$

12) $\frac{e}{\boxed{b}} = \frac{f}{c}$



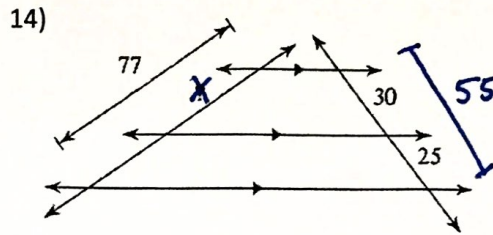
Solve for the missing side.



$$\frac{x}{5} = \frac{6}{3}$$

$$\frac{3x}{3} = \frac{30}{3}$$

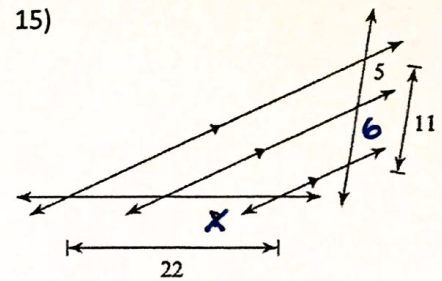
$$x = 10$$



$$\frac{x}{77} = \frac{30}{55}$$

$$\frac{55x}{55} = \frac{2310}{55}$$

$$x = 42$$



$$\frac{x}{22} = \frac{6}{11}$$

$$\frac{11x}{11} = \frac{132}{11}$$

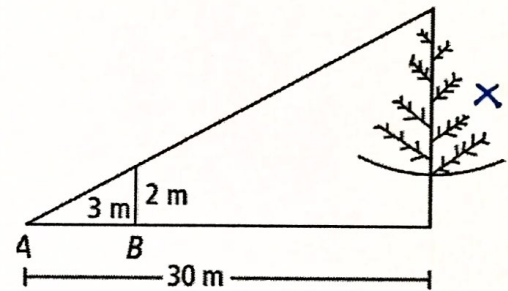
$$x = 12$$

16) A stick 2 m long is placed vertically at point B. The top of the stick is in line with the top of a tree as seen from point A, which is 3 m from the stick and 30 m from the tree. How tall is the tree?

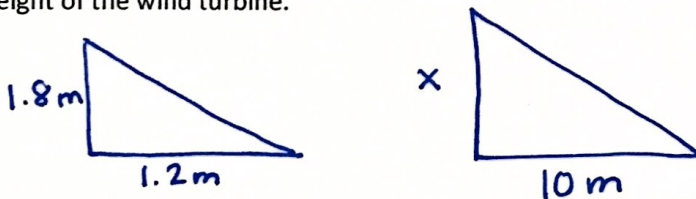
$$\frac{x}{2} = \frac{30}{3}$$

$$\frac{3x}{3} = \frac{60}{3}$$

$$x = 20 \text{ m}$$



17) 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 the height of the wind turbine.

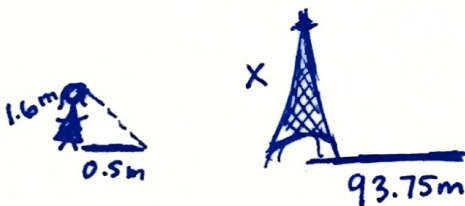


$$\frac{x}{1.8} = \frac{10}{1.2}$$

$$\frac{1.2x}{1.2} = \frac{18}{1.2}$$

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

18) A 1.6-m-tall woman stands next to the Eiffel Tower. At this time of day, her shadow is 0.5 m long. At the same time, the tower's shadow is 93.75 m long. Draw a diagram of this situation and then calculate the height of the Eiffel Tower.



$$\frac{x}{1.6} = \frac{93.75}{0.5}$$

$$\frac{0.5x}{0.5} = \frac{150}{0.5}$$

$$x = 300 \text{ m}$$