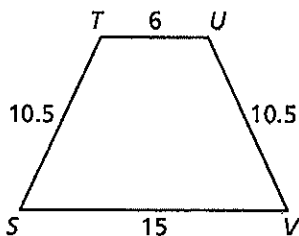
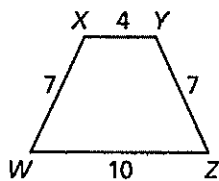


OPTIONAL Practice Test

1. The given polygons are similar. Find the scale factor if $WXYZ \sim STUV$



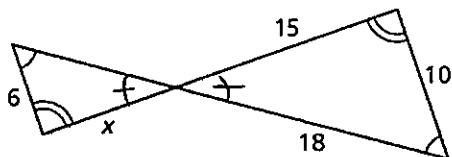
$$K = \frac{10.5}{7} = \frac{105}{70} = \frac{21}{14} = \boxed{\frac{3}{2}}$$

2. From #1, what would the ratios of the perimeters be? What would the ratios of the areas be?

$$\boxed{\frac{3}{2}}$$

$$\left(\frac{3}{2}\right)^2 = \boxed{\frac{9}{4}}$$

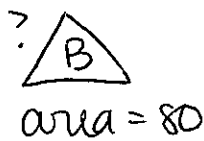
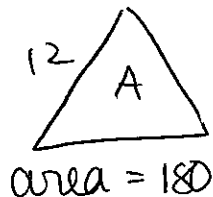
3. The polygons are similar. Find the value of x .



$$\frac{x}{15} = \frac{6}{10}$$

$$90 = 10x \rightarrow \boxed{x = 9}$$

4. Figure A has an area of 180 m^2 and Figure B has an area of 80 m^2 . Figure A has a side length of 12 m. What is the corresponding side length in Figure B?



$$\left(\frac{12}{b}\right)^2 = \frac{180}{80}$$

$$\frac{144}{b^2} = \frac{180}{80}$$

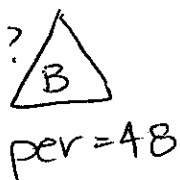
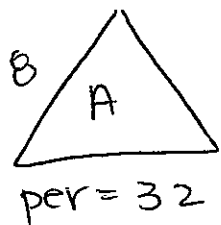
$$180b^2 = 11520$$

$$b^2 = 64$$

$$b = 8$$

$$\boxed{8 \text{ m}}$$

5. Figure A has a perimeter of 32 m and Figure B has a perimeter of 48 m. Figure A has a side length of 8 m. What is the corresponding side length in Figure A?



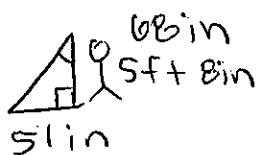
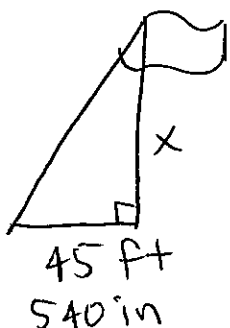
$$\frac{8}{b} = \frac{32}{48}$$

$$32b = 384$$

$$b = 12$$

$$\boxed{12 \text{ m}}$$

6. A school flagpole casts a shadow that is 45 ft long. At the same time, a boy who is 5 ft 8 in tall casts a shadow that is 51 in long. How tall is the flagpole to the nearest foot?



$$\frac{68}{x} = \frac{51}{540}$$

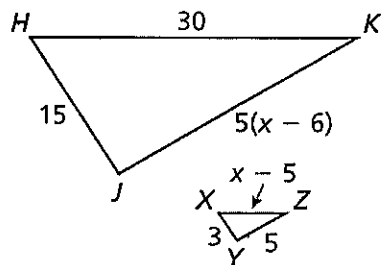
$$51x = 36720$$

$$x = 720 \text{ in}$$

$$720 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}}$$

$$\boxed{60 \text{ ft}}$$

7. Find the value of x that makes $\triangle XYZ \sim \triangle HJK$.



$$\text{scale factor} = \frac{15}{3} = 5$$

$$\text{so, } xz = 6$$

$$x - 5 = 6$$

$$\boxed{x = 11}$$

$$JK = 25$$

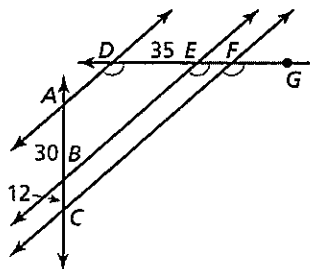
$$5(x - 6) = 25$$

$$x - 6 = 5$$

$$\boxed{x = 11}$$

check

8. Find the length of segment EF.



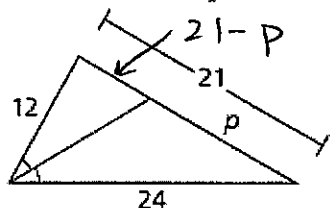
$$\frac{30}{12} = \frac{35}{x}$$

$$420 = 30x$$

$$x = 14$$

$$\boxed{EF = 14}$$

9. Find the value of p .



$$\frac{p}{21-p} = \frac{24}{12}$$

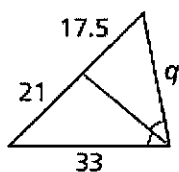
$$\frac{p}{21-p} = 2$$

$$p = 42 - 2p$$

$$3p = 42$$

$$\boxed{p = 14}$$

10. Find the value of q .

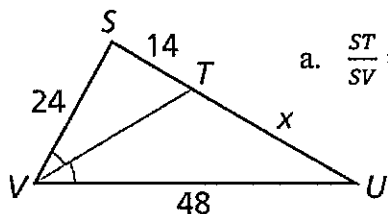


$$\frac{21}{17.5} = \frac{33}{q}$$

$$577.5 = 21q$$

$$\boxed{q = 27.5}$$

11. Which proportion is correct?



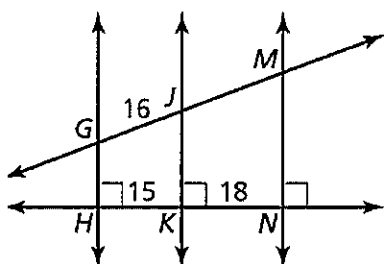
a. $\frac{ST}{SV} = \frac{VU}{TU}$

b. $\frac{VT}{ST} = \frac{TU}{VT}$

c. $\frac{VU}{SU} = \frac{VS}{SU}$

d. $\frac{ST}{TU} = \frac{VS}{VU}$

12. Complete the statement.



a. $\frac{GJ}{HK} = \frac{GM}{?}$

$$HN$$

b. $\frac{?}{KN} = \frac{GJ}{HK}$

$$JM$$

13. You are making a scale model of a rectangular park for a school project. Your model has a length of 2 feet and a width of 1.4 feet. The actual park is 800 yards long. What is the width of the actual park?

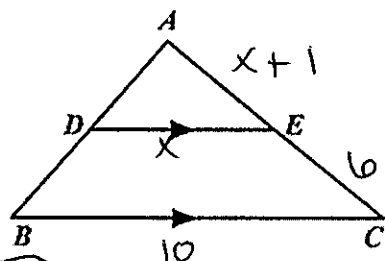
$$\begin{array}{ccc} 1.4 & \boxed{\text{model}} & \boxed{\text{park}} \\ 2 & & 800 \end{array} ? \quad \frac{1.4}{2} = \frac{x}{800}$$

$$2x = 1120$$

$$x = 560$$

$\boxed{560 \text{ yards}}$

14. In the diagram, $DE = x$, $BC = 10$, $AE = (x + 1)$ and $EC = 6$. Find DE and AC .



$$\frac{x}{10} = \frac{x+1}{(x+1)+6}$$

$$\frac{x}{10} = \frac{x+1}{x+7}$$

$$x^2 + 7x = 10x + 10$$

$$x^2 - 3x - 10 = 0$$

$$(x-5)(x+2) = 0$$

$$\boxed{x=5} \quad x=-2$$

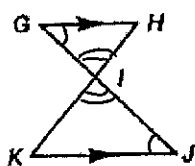
↑
cant have negative length

So, $DE = 5$
and $AC = 12$

15. Write a two-column proof.

Given: $\overline{GH} \parallel \overline{JK}$

Prove: $\triangle GHI \sim \triangle JKI$



Statements

Reasons

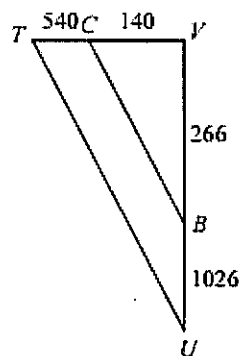
- ① $\overline{GH} \parallel \overline{JK}$
- ② $\angle G \cong \angle J$
- ③ $\angle GIH \cong \angle JIK$
- ④ $\triangle GHI \sim \triangle JKI$

- ① given
- ② $\parallel \rightarrow$ alt. int. $\angle s \cong$
- ③ vertical $\angle s \cong$
- ④ AA~

16. Write a two-column proof.

Given: $CV = 140$, $TC = 540$, $VB = 266$ and $BU = 1026$

Prove: $\triangle CVB \sim \triangle TVU$



Statements	Reasons
① $CV = 140$, $TC = 540$, $VB = 266$ $BU = 1026$	① given
② $\frac{CV}{TV} = \frac{140}{680} = \frac{7}{34}$ $\frac{VB}{VU} = \frac{266}{1292} = \frac{7}{34}$	② corresp. side ratios
③ $\frac{CV}{TV} = \frac{VB}{VU}$	③ Trans. prop. =
④ $\angle V \cong \angle V$	④ reflex. prop. $\cong$
⑤ $\triangle CVB \sim \triangle TVU$	⑤ SAS $\sim$

Statements	Reasons
① $CV = 140$, $TC = 540$, $VB = 266$, $BU = 1026$	① given
② $\frac{CV}{TC} = \frac{140}{540} = \frac{7}{27}$ $\frac{VB}{BU} = \frac{266}{1026} = \frac{7}{27}$	② corresp. side ratios
③ $\frac{CV}{TC} = \frac{VB}{BU}$	③ Trans. prop. =
④ $\overline{CB} \parallel \overline{TU}$	④ converse of Δ proportional

Continued $\rightarrow$

$$\textcircled{5} \angle VCB \cong \angle VTU$$

$$\textcircled{6} \angle V \cong \angle V$$

$$\textcircled{7} \triangle CVB \sim \triangle TVU$$

$$\textcircled{5} \parallel \rightarrow \text{corresp. } \angle s \cong$$

$$\textcircled{6} \text{ reflex. prop. } \cong$$

$$\textcircled{7} AA \sim$$