

Unit 6 Test Study Guide (Similar Triangles)

Name: Key

Date: _____ Block: _____

Topic 1: Ratio & Proportion

1. The ratio of the measures of the angles in a triangle is 8:3:4. Find the measures of the angles.

$$8x + 3x + 4x = 180$$

$$\frac{15x}{15} = \frac{180}{15}$$

$$x = 12$$

$$96^\circ, 36^\circ, 48^\circ$$

2. The ratio of the measures of the sides of a triangle is 9:12:5. If the perimeter of the triangle is 130 feet, find the measures of the sides.

$$9x + 12x + 5x = 130$$

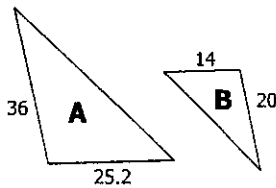
$$26x = 130$$

$$x = 5$$

$$45\text{ft}, 60\text{ft}, 25\text{ft}$$

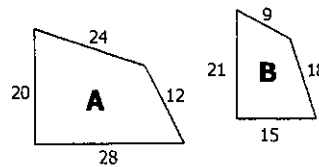
Topic 2: Similar Figures

3. Find the scale factor of Figure A to Figure B.



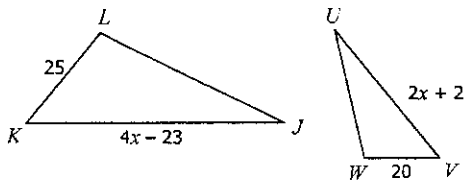
$$9:5$$

4. Find the scale factor of Figure B to Figure A.



$$3:4$$

5. If $\triangle K LJ \sim \triangle VWU$, find the value of x .



$$\frac{25}{20} = \frac{4x - 23}{2x + 2}$$

$$4(4x - 23) = 5(2x + 2)$$

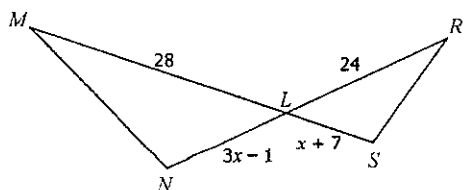
$$16x - 92 = 10x + 10$$

$$6x - 92 = 10$$

$$6x = 102$$

$$x = 17$$

6. If $\triangle NML \sim \triangle SRL$ find the value of x .



$$\frac{28}{24} = \frac{3x - 1}{x + 7}$$

$$6(3x - 1) = 7(x + 7)$$

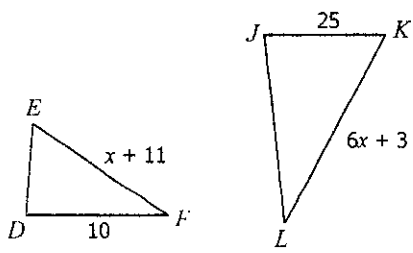
$$18x - 6 = 7x + 49$$

$$11x - 6 = 49$$

$$11x = 55$$

$$x = 5$$

7. If $\triangle DEF \sim \triangle JKL$ find KL .



$$\frac{x+11}{6x+3} = \frac{10}{25}$$

$$2(x+11) = 6x+3$$

$$2x+22 = 6x+3$$

$$7x+6 = 55$$

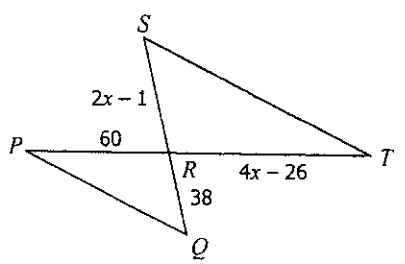
$$7x = 49$$

$$x = 7$$

$$KL = 6(7) + 3$$

$$\boxed{KL = 45}$$

8. If $\triangle PQR \sim \triangle TSR$ find SR .



$$\frac{60}{4x-26} = \frac{38}{2x-1}$$

$$38(4x-26) = 60(2x-1)$$

$$152x - 988 = 120x - 60$$

$$32x - 988 = -60$$

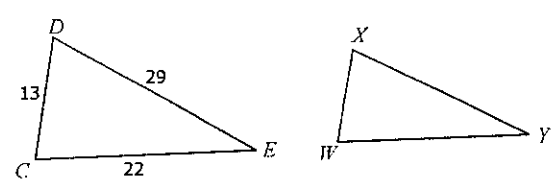
$$32x = 928$$

$$x = 29$$

$$SR = 2(29) - 1$$

$$\boxed{SR = 57}$$

9. If $\triangle CDE \sim \triangle WXY$ with a scale factor of 4:3, find the perimeter of $\triangle WXY$.



$$\frac{4}{3} = \frac{64}{x}$$

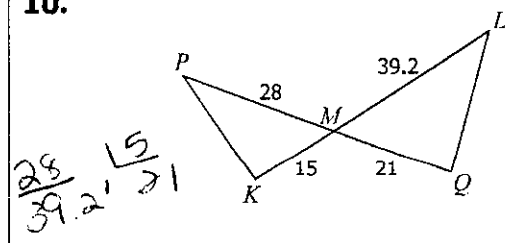
$$4x = 192$$

$$\boxed{x = 48}$$

Topic 3: Proving Triangles Similar

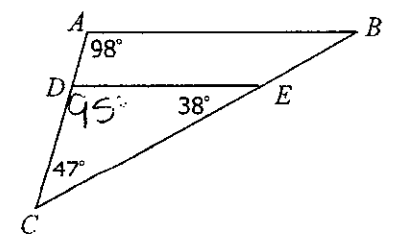
Determine if the triangles are similar, if possible, by AA~, SSS~, or SAS~. If similar, complete the similarity statement.

10.



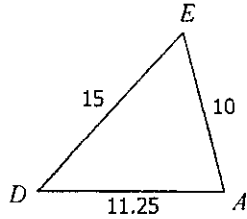
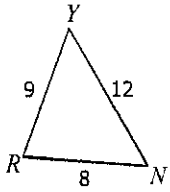
Similar By: SAS~
 $\triangle PKM \sim \triangle LQM$

11.



Similar By: NOT~
 $\triangle CAB \sim \underline{\hspace{2cm}}$

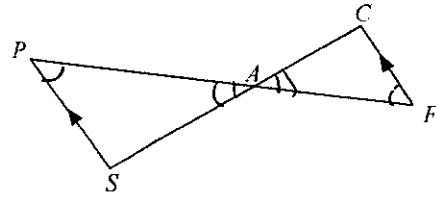
12.



$$\frac{8}{10}, \frac{9}{11.25}, \frac{12}{15}$$

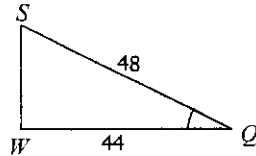
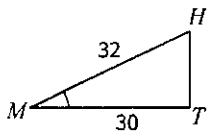
Similar By: SSS~
 $\triangle RYN \sim \triangle DEA$

13.



Similar By: AA~
 $\triangle PAS \sim \triangle FAC$

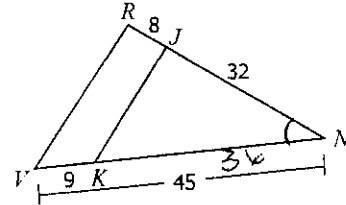
14.



$$\frac{32}{48}, \frac{30}{44}$$

Similar By: NOT~
 $\triangle MTH \sim \underline{\hspace{2cm}}$

15.



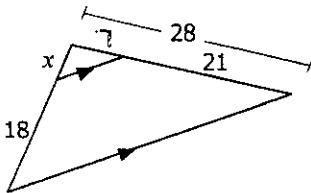
$$\frac{32}{40}, \frac{36}{45}$$

Similar By: SAS~
 $\triangle JKN \sim \triangle RVN$

Topic 4: Parallel Lines & Proportional Parts

Directions: Solve for x .

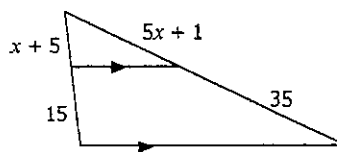
16.



$$\frac{x}{18} = \frac{7}{21} \quad 21x = 126$$

$$\boxed{x = 6}$$

17.



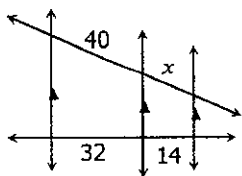
$$\frac{x+5}{15} = \frac{5x+1}{35}$$

$$15(5x+1) = 35(x+5)$$

$$75x+15 = 35x+175$$

$$40x = 160 \quad \boxed{x = 4}$$

18.

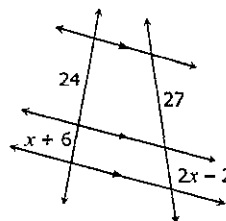


$$\frac{40}{x} = \frac{32}{14}$$

$$32x = 560$$

$$\boxed{x = 17.5}$$

19.



$$\frac{24}{x+6} = \frac{27}{2x-2}$$

$$24(2x-2) = 27(x+6)$$

$$48x - 48 = 27x + 162$$

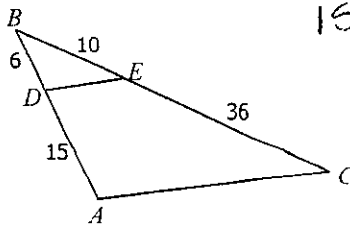
$$21x - 48 = 162$$

$$21x = 210$$

$$\boxed{x = 10}$$

Directions: Determine if \overline{DE} is parallel to \overline{AC} .

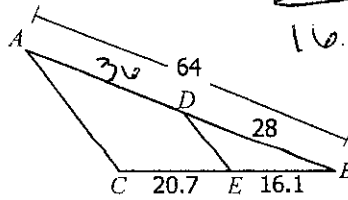
20.



$$\frac{6}{15}, \frac{10}{36}$$

NO

21.



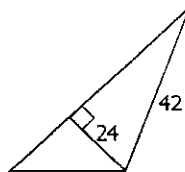
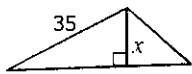
$$\frac{20.7}{16.1}, \frac{36}{28}$$

YES

Topic 5: Parts of Similar Triangles

Directions: The triangles shown below are similar. Solve for x .

22.

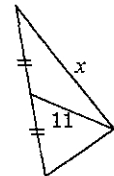
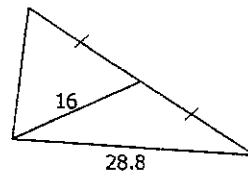


$$\frac{35}{42} = \frac{x}{24}$$

$$42x = 840$$

$x = 20$

23.

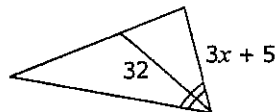
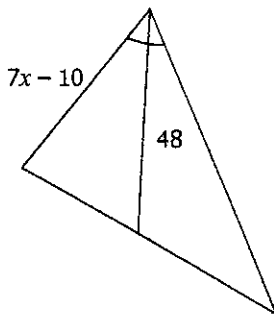


$$\frac{16}{11} = \frac{28.8}{x}$$

$$16x = 316.8$$

$x = 19.8$

24.



$$\frac{7x-10}{3x+5} = \frac{48}{32}$$

$$2(7x-10) = 3(3x+5)$$

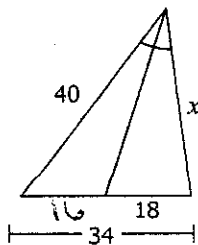
$$14x-20 = 9x+15$$

$$5x-20 = 15$$

$$5x = 35$$

$x = 7$

25.

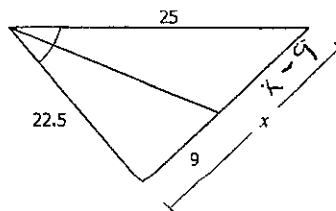


$$\frac{16}{18} = \frac{40}{x}$$

$$16x = 720$$

$x = 45$

26.



$$\frac{9}{x-9} = \frac{22.5}{25}$$

$$22.5(x-9) = 22.5 \cdot 25$$

$$22.5x - 202.5 = 562.5$$

$$22.5x = 765$$

$x = 34$