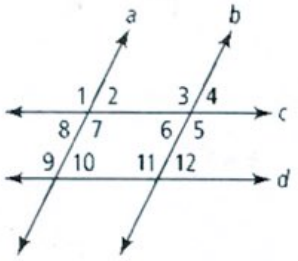
Name KEY Period _____

Secondary 2 Honors | Unit 1 Review | Assignment 1.6

Answer each question to the best of your ability without using any resources. If you are unable to answer the question look back at your notes and your homework assignments. If you are still not able to answer the question, ask a friend. If you and your friend are unable to figure it out, I would be happy to help.

1. Suppose a || b and c || d for the following questions



a) If m∠6 = 50, then find m∠11.
m∠11 = 130°

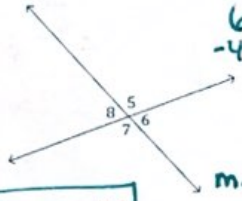
b) If m∠2 = 70, then find m∠6.
m∠6 = 70°

c) If m∠1 = 130, then find m∠5.
m∠5 = 130°

d) If ∠7 = 110, then find m∠10.
m∠10 = 70°

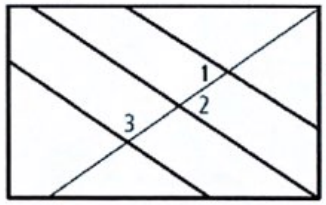
e) If m∠4 = 45, then find m∠12.
m∠12 = 45°

2. If $m\angle 5 = 6x + 5$ and $m\angle 7 = 4x + 35$, find $m\angle 8$



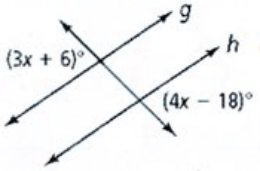
$6x+5 = 4x+35$
$-4x \quad -5 \quad -4x \quad -5$
$2x = 30$
$x = 15$
$m\angle 7 = 4(15) + 35$
$m\angle 7 = 95$
$m\angle 8 = 180 - 95$
m∠8 = 85°

3. The art club is designing a new flag for the marching band. In the diagram, m∠1 = 45, m∠2 = 45, and m∠3 = 145. Does the flag contain three parallel lines? Explain.



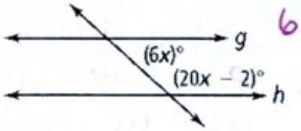
NO. Lines 1 and 2 are parallel, but 3 is NOT!
145 + 45 = 190

4. Find the value of x for which g || h.



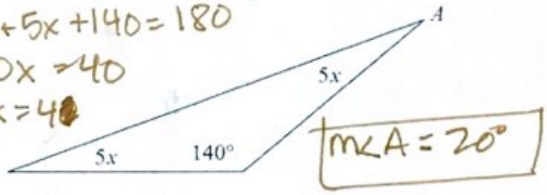
$3x+6 = 4x-18$
$-3x \quad +18 \quad -3x \quad +18$
24 = x

5. Find the value of x for which g || h.



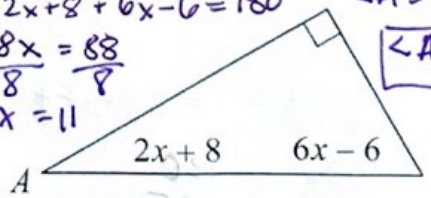
$6x + 20x - 2 = 180$
$\frac{26x}{26} = \frac{182}{26}$
x = 7

6. Find the measure of angle A



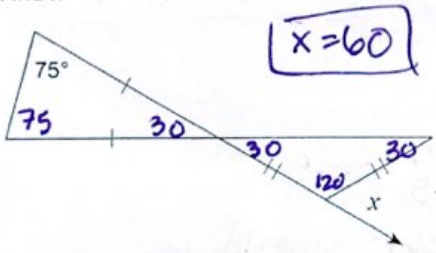
$5x + 5x + 140 = 180$
$10x = 40$
$x = 4$
m∠A = 20°

7. Find the measure of angle A



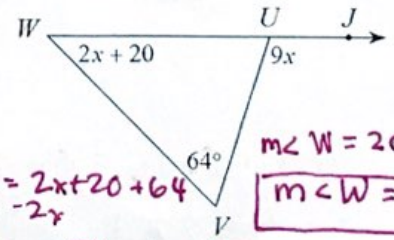
$90 + 2x + 8 + 6x - 6 = 180$
$\frac{8x}{8} = \frac{88}{8}$
$x = 11$
$\angle A = 2(11) + 8$
∠A = 30°

8. Find x



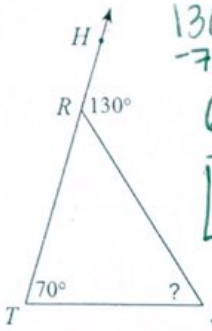
x = 60

9. Find $m\angle W$



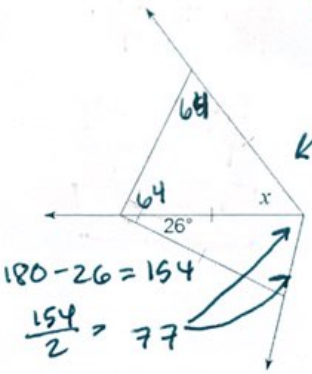
$9x = 2x + 20 + 64$
$-2x \quad -2x$
$7x = 84 \quad x = 12$
$m\angle W = 2(12) + 20$
m∠W = 44

10. Find $m\angle S$



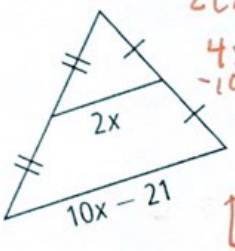
$130 = 70 + ?$
$-70 \quad -70$
$60 = ?$
$\boxed{\angle S = 60°}$

11. Find x



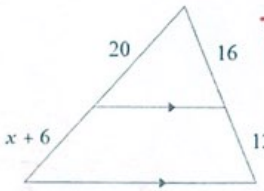
$180 - 64 - 64 = 52$
$\boxed{x = 52°}$
$180 - 26 = 154$
$\frac{154}{2} = 77$

12. Solve for x



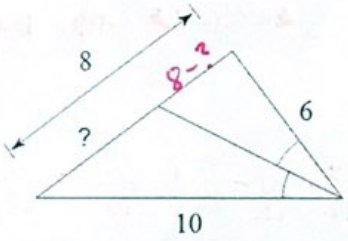
$2(2x) = 10x - 21$
$4x = 10x - 21$
$-10x \quad -10x$
$\frac{-6x}{-6} = \frac{-21}{-6}$
$\boxed{x = 3.5}$

13. Solve for x



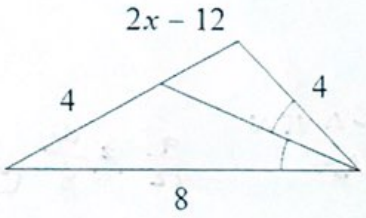
$\frac{20}{x+6} = \frac{16}{12}$
$240 = 16x + 96$
$-96 \quad -96$
$\frac{144}{16} = \frac{16x}{16}$
$\boxed{x = 9}$

14. Solve for the indicated side length

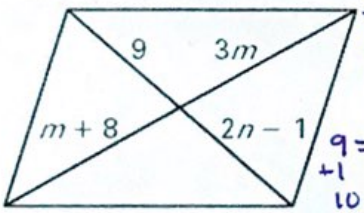


$8 - 2$

15. Solve for x

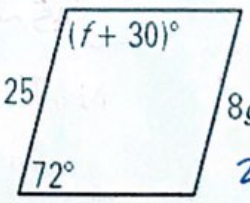


16. Give that the figure below is a parallelogram, solve for m and n



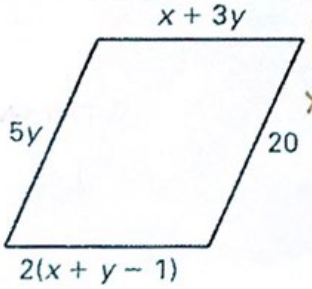
$3m = m + 8$
$-m \quad -m$
$2m = 8$
$\boxed{m = 4}$
$9 = 2n - 1$
$+1 \quad +1$
$10 = 2n$
$\boxed{n = 5}$

17. Give that the figure below is a parallelogram, solve for f and g



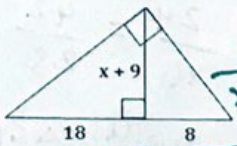
$f + 30 + 72 = 180$
$f + 102 = 180$
$-102 \quad -102$
$\boxed{f = 78°}$
$25 = 8g - 3$
$+3 \quad +3$
$\frac{28}{8} = \frac{8g}{8}$
$\boxed{g = 3.5}$

18. Give that the figure below is a parallelogram, solve for x and y



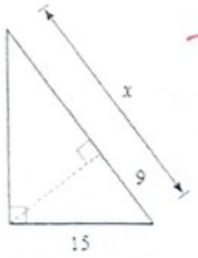
$5y = 20$
$\boxed{y = 4}$
$x + 3(4) = 2(x + 9)$
$x + 12 = 2x + 6$
$\boxed{6 = x}$

19. Find the value of x



$\frac{18}{x+9} = \frac{x+9}{8}$
$\sqrt{144} = \sqrt{(x+9)^2}$
$12 = x + 9$
$-9 \quad -9$
$\boxed{x = 3}$

20. Find the value of x

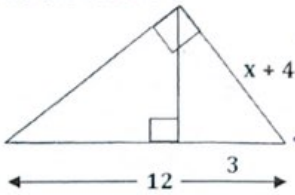


$\frac{x}{15} = \frac{15}{9}$

$\frac{9x}{9} = \frac{225}{9}$

$x = 25$

21. Find the value of x



$\frac{12}{x+4} = \frac{x+4}{3}$

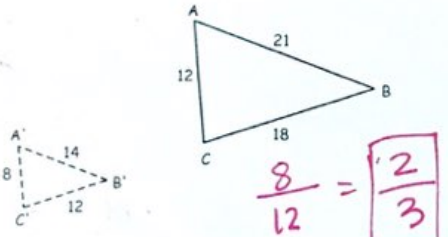
$\sqrt{36} = \sqrt{(x+4)^2}$

$6 = x + 4$

$-4 \quad -4$

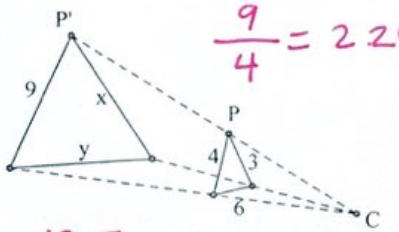
$x = 2$

22. The following transformation represents a dilation. Determine the scale factor and whether the dilation is an enlargement, reduction or congruency transformation.



$\frac{8}{12} = \frac{2}{3}$

23. Identify whether the dilation is an enlargement or reduction, find its scale factor, and find the value of x and y.



$\frac{9}{4} = 2.25$

$y = 13.5 \quad x = 6.75$

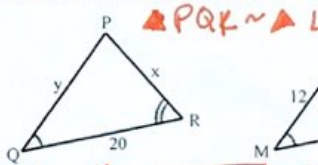
24. Identify the similar triangles by writing a similarity statement. Find the value of each variable.

$\triangle RPQ \sim \triangle VTW$ by AA~

$\frac{9}{12} = \frac{w}{8}$

$w = 10.\overline{6}$

25. Identify the similar triangles by writing a similarity statement. Find the value of each variable.

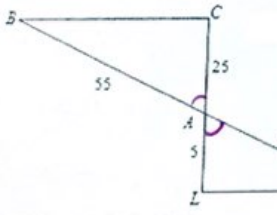


$\triangle PQR \sim \triangle LMN$ by AA~

$\frac{20}{15} = \frac{y}{12}$ $y = 16$ $\frac{20}{15} = \frac{x}{18}$ $x = 24$

Decide whether the following triangles are similar. If they are, state 1) the similarity postulate/theorem (AA~, SAS~, or SSS~) that justifies your answer and 2) the similarity statement.

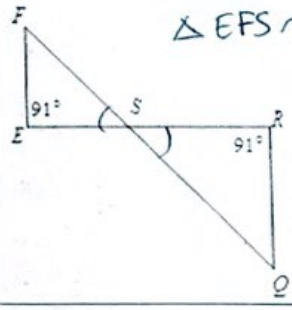
26.



$\frac{5}{25} \neq \frac{12}{55}$

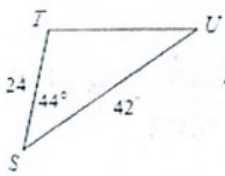
NOT SIMILAR

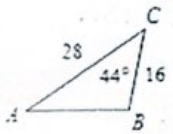
27.



$\triangle EFS \sim \triangle RSQ$ by AA~

28.

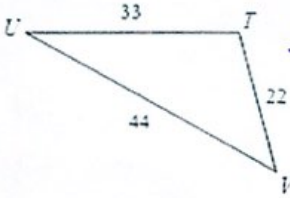


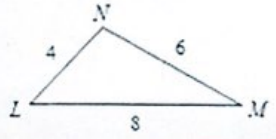


$\frac{24}{16} = \frac{42}{28}$

$\triangle STU \sim \triangle CBA$ by SAS~

29.

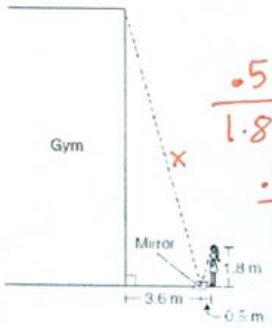




$\frac{44}{8} = \frac{22}{4} = \frac{33}{6}$

$\triangle TUV \sim \triangle NML$ by SSS~

30. Nicole wants to estimate the height of her school's gym. Nicole sights the top of the gym wall in a mirror that she has placed on the ground. The mirror is 3.6 meters from the base of the gym wall. Nicole is standing 0.5 meter from the mirror and her height is about 1.8 meters. What is the height of the gym wall?

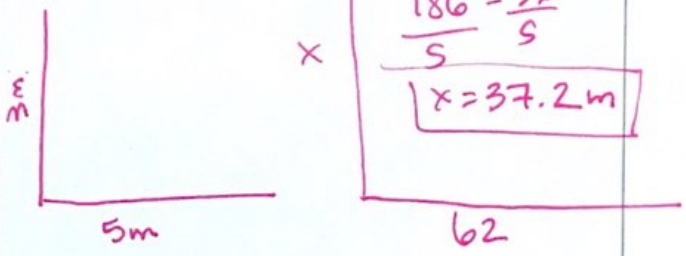


$\frac{.5}{1.8} = \frac{3.6}{x}$

$\frac{.5x}{.5} = \frac{6.48}{.5}$

$x = 12.96m$

31. A flagpole 3 meters tall casts a shadow 5 meters long at the same time that a building nearby casts a shadow 62 meters long. How tall is the building?



$\frac{3}{x} = \frac{5}{62}$

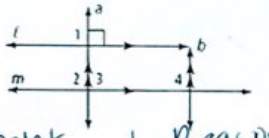
$\frac{186}{5} = \frac{5x}{5}$

$x = 37.2m$

Proofs: Construct a proof for the given problems

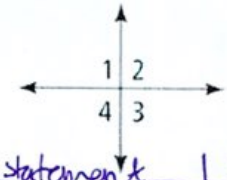
32. Given: $l \parallel m$ and $a \perp l$
Prove: $b \perp m$

$\angle 4 = 90°$



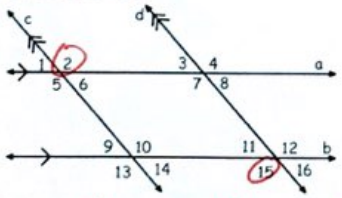
Statement	Reason
1. $l \parallel m$, $a \perp l$	1. Given
2. $a \parallel b$	2. see picture
3. $\angle 3 = 90°$	3. corresponding $\angle$
4. $\angle 3 + \angle 4 = 180°$	4. Same Side Interior
5. $m\angle 4 = 90°$	5. substitution
6. $b \perp m$	6. $\angle 4 = 90°$

33. Given: $\angle 1 \cong \angle 2$
Prove: $\angle 1 \cong \angle 2 \cong \angle 3 \cong \angle 4$



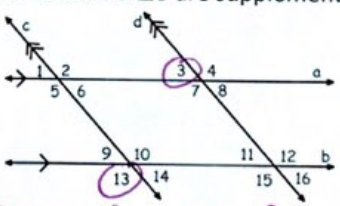
Statement	Reason
1. $\angle 1 \cong \angle 2$	1. Given
2. $\angle 2 \cong \angle 4$	2. Vertical Angles
3. $\angle 1 \cong \angle 3$	3. VA
4. $\angle 1 \cong \angle 2 \cong \angle 3 \cong \angle 4$	4. substitution

34. Given: $a \parallel b$ and $c \parallel d$
Prove: $\angle 2 \cong \angle 15$



Statement	Reason
1. $a \parallel b$, $c \parallel d$	1. Given
2. $\angle 2 \cong \angle 10$	2. corresponding
3. $\angle 10 \cong \angle 15$	3. Alt. Interior
4. $\angle 2 \cong \angle 15$	4. Substitution.

35. Given: $a \parallel b$ and $c \parallel d$
Prove: $\angle 13$ and $\angle 3$ are supplementary



Statement	Reason
1. $a \parallel b$, $c \parallel d$	1. Given
2. $\angle 13 \cong \angle 2$	2. Alt Exterior
3. $\angle 2 + \angle 3 = 180°$	3. Same Side Int.
4. $\angle 13 + \angle 3 = 180°$	4. Substitution

36. Go over all of the proofs we did in class and the proofs in the homework. I promise some of them will be on the test!