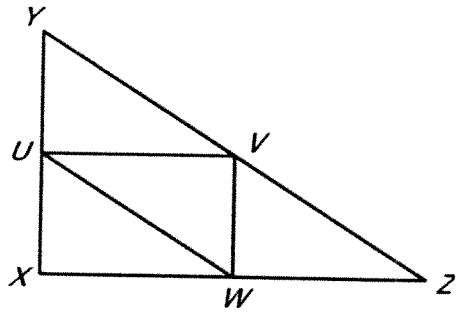
Geometry – Chapter 5 Review

Name: Answer Key

Period: _____ Date: _____

Identify and Use Special Segments in Triangles



1) Given *R*, *S*, and *T* are midpoints, complete each statement.

1a) $\overline{UV} \parallel$ $\overline{XZ}$

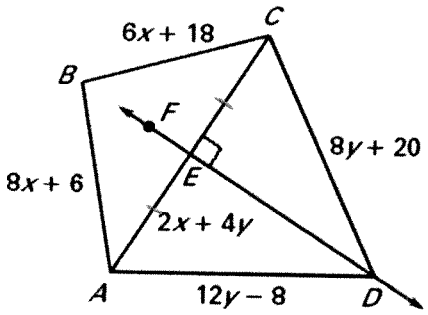
1b) $\overline{UW} \cong$ $\overline{YV}$ $\cong$ $\overline{VZ}$

1c) If VW = 22, then YX = 44

1d) If $UW = 4x - 1$ and $YZ = 5x + 4$ then

$2(4x-1) = 5x+4$

x = 2 and UW = 7



2) Use the image at the left to complete each each statement.

2a) Find the value of x and y. x = 6

$6x+18 = 8x+6$
$-6x \quad -6x$
$18 = 2x+6$
$-6 \quad -6$
$\frac{12}{2} = \frac{2x}{2}$
$x = 6$

y= 7

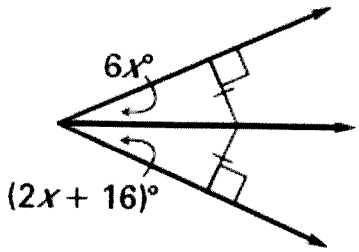
$12y-8 = 8y+20$
$-8y \quad -8y$
$4y-8 = 20$
$+8 \quad +8$
$\frac{4y}{4} = \frac{28}{4}$
$y = 7$

2b) If $\overline{CB} \cong \overline{AB}$, what must be true about B?

B is on the perpendicular bisector of $\overline{AC}$

3) Decide whether the value of x can be determined. If yes, find the value of x. If no, explain why it cannot be determined.

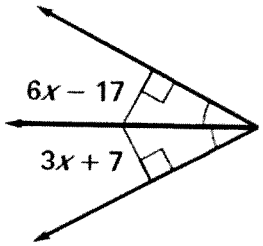
3a)



Can x be determined? Yes or No
Find x or explain.

$6x = 2x+16$
$-2x \quad -2x$
$\frac{4x}{4} = \frac{16}{4}$
$x = 4$

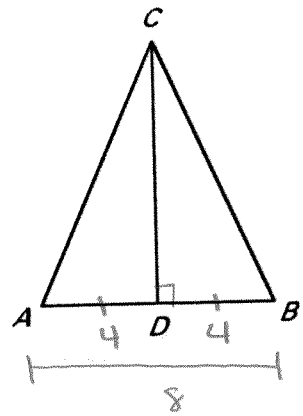
3b)



Can x be determined? Yes or No
Find x or explain.

$6x-17 = 3x+7$
$-3x \quad -3x$
$3x-17 = 7$
$+17 \quad +17$
$\frac{3x}{3} = \frac{24}{3}$
$x = 8$

4) Find the indicated measures if $\overline{CD}$ is a perpendicular bisector of $\overline{AB}$, CD = 12 and AB = 8.

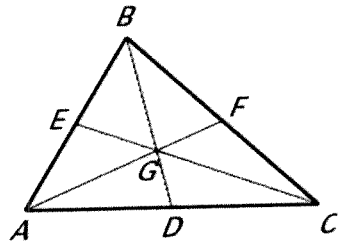


4a) $m\angle CDB =$ 90°

4b) AD = 4

4c) CB $\cong$ CA

5) Point G is the centroid of ΔABC. Use the given information to find the value of x.



5a) CG = 3x + 7 and CE = 6x

$\frac{2}{3}CE = CG$

$\frac{2}{3}(6x) = 3x+7$

$4x = 3x+7$

$-3x \quad -3x$

$\boxed{x=7}$

5b) FG = x + 8 and AF = 9x - 6

$3(x+8) = 9x-6 \rightarrow 3x+24 = 9x-6$

$-3x \quad -3x$

$24 = 6x-6$

$+6 \quad +6$

$\frac{30}{6} = \frac{6x}{6}$

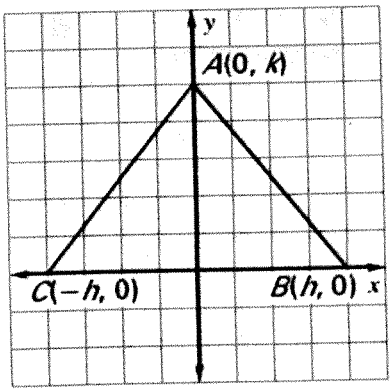
$\boxed{x=5}$

5c) BG = 5x – 1 and DG = 4x -5

$2(4x-5) = 5x-1$

$8x-10 = 5x-1 \rightarrow 3x = 9 \rightarrow \boxed{x=3}$

6) Use the image at the right to complete each statement (find values for k, h, and –h)



6a) If $\overline{DE}$ is a midsegment parallel to $\overline{CB}$, find the coordinates of *D* and *E*.

$\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}$

D (-2, 2.5)

E (2, 2.5)

6b) Demonstrate that the parallel side $\overline{CB}$ is twice the length of the midsegment $\overline{DE}$ or *CB* = 2 *DE*.

$x_1 \; y_1$

D (-2, 2.5)

$x_2 \; y_2$

E (2, 2.5)

$\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

C (-4, 0)

B (4, 0)

$DE = \sqrt{(2--2)^2+(2.5-2.5)^2}$

$DE = \sqrt{4^2+0^2}$

$DE = \sqrt{16}$

$DE = 4$

$CB = 2 \cdot DE$

$8 = 2 \cdot 4$ ✓

$CB = \sqrt{(4--4)^2+(0-0)^2}$

$CB = \sqrt{8^2+0^2}$

$CB = \sqrt{64}$

$CB = 8$