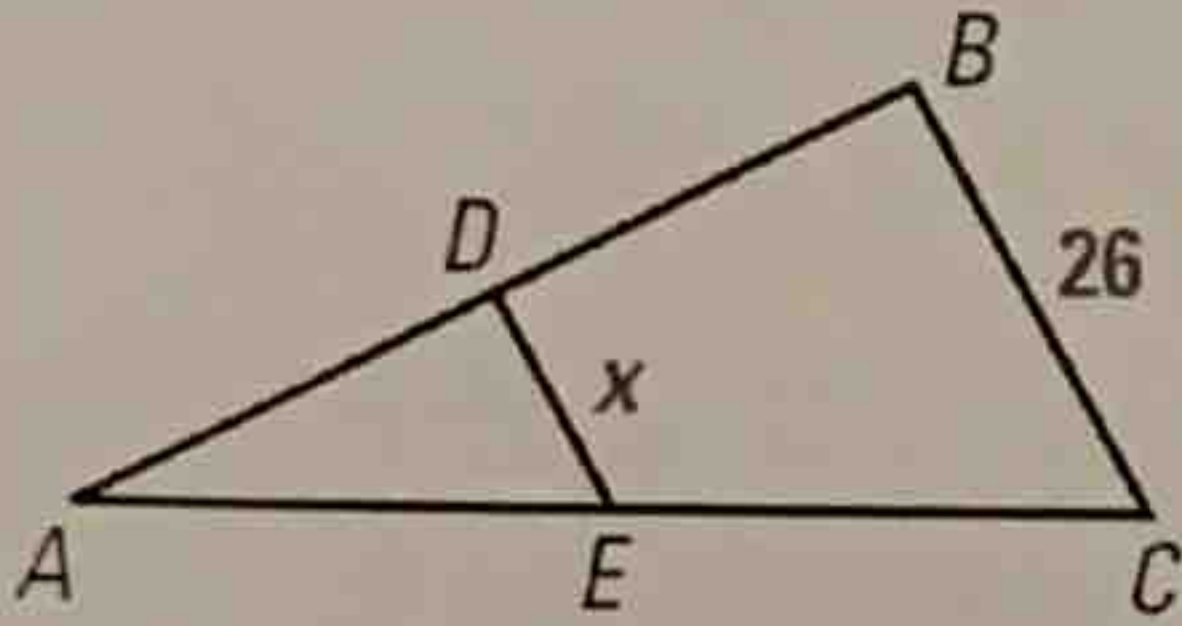


# Homework – Midsegments

Name: Key

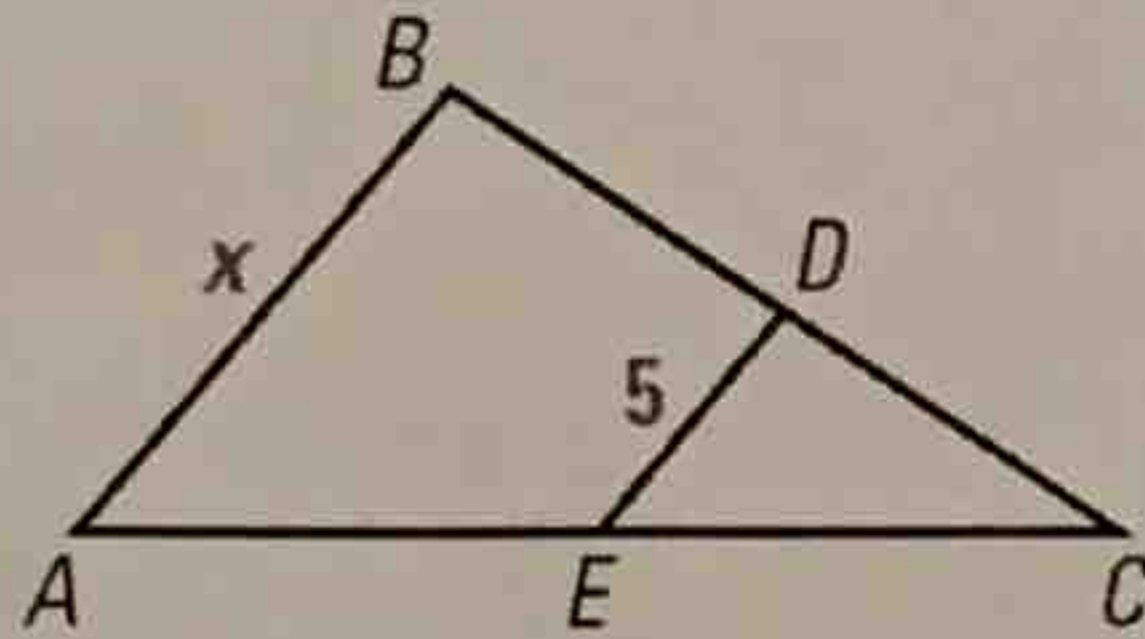
$\overline{DE}$  is the midsegment of  $\triangle ABC$ . Find the value of  $x$ .

1.



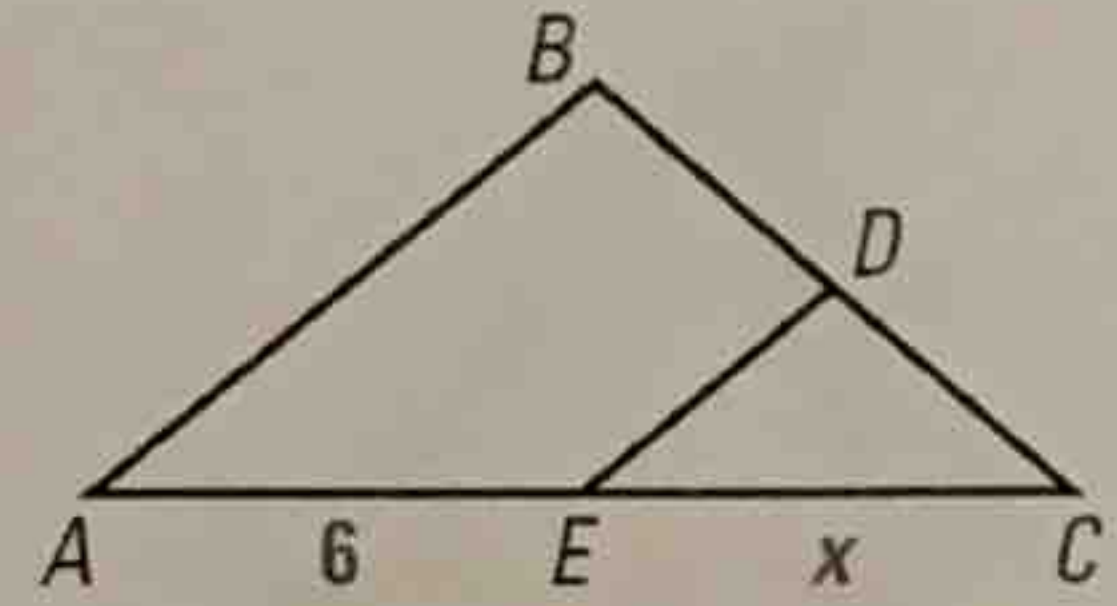
$x = \frac{1}{2} 26$   
 $x = 13$

2.



$5 = \frac{1}{2} x$   
 $x = 10$

3.



$x = 6$

In  $\triangle XYZ$ ,  $\overline{XJ} \cong \overline{JY}$ ,  $\overline{YL} \cong \overline{LZ}$ , and  $\overline{XK} \cong \overline{KZ}$ . Complete each statement.

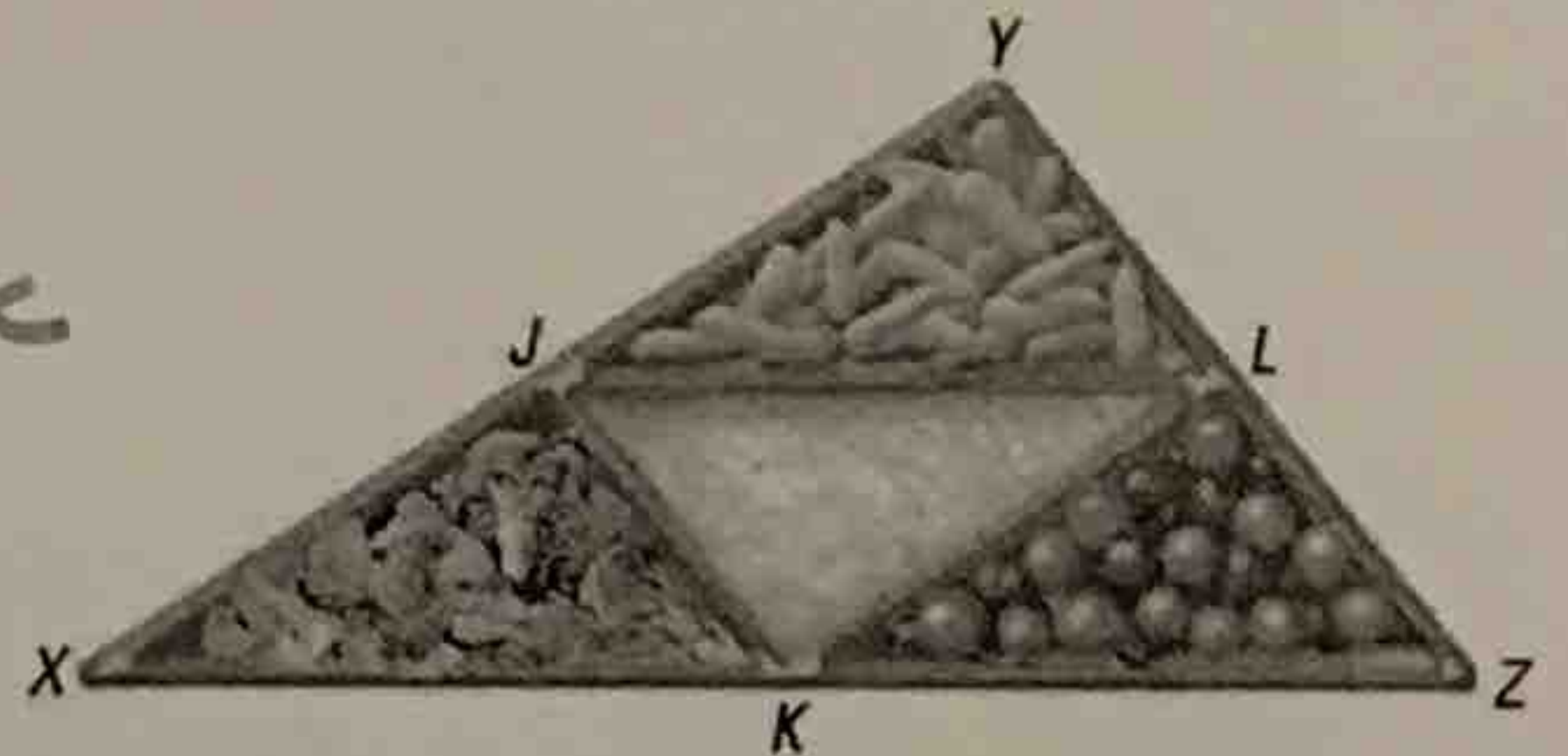
4.  $\overline{JK} \parallel \underline{YZ}$

5.  $\overline{JL} \parallel \underline{XZ}$

6.  $\overline{XY} \parallel \underline{LK}$

7.  $\overline{YJ} \cong \underline{XJ} \cong \frac{1}{2} YX = LK$

8.  $\overline{JL} \cong \frac{1}{2} XZ \cong \underline{XK = ZK}$  9.  $\overline{JK} \cong \frac{1}{2} YZ \cong \underline{LY = LZ}$



Prior Knowledge and Making Connections – Use the diagram to complete the statements and provide a reason (angle relationship).

10.  $\angle G \cong \angle BAH$  because:

Corr.  $\angle$ s are  $\cong$

11.  $\angle J + \angle ABJ = 180^\circ$  because:

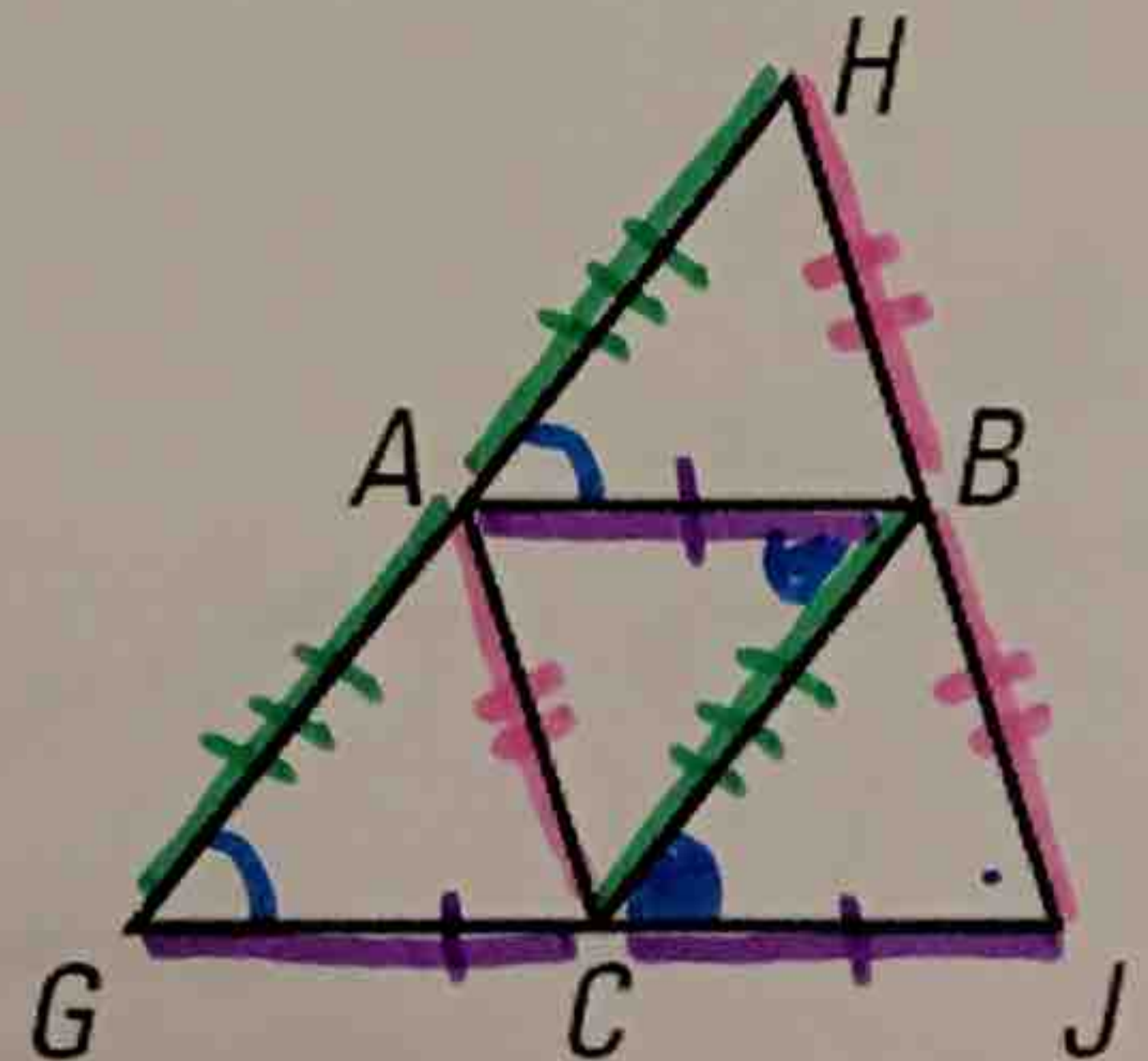
con. int  $\angle$ s are suppl.

12.  $\angle JCB \cong \angle CBA$  because:

alt. int.  $\angle$ s are  $\cong$

13.  $\angle J + \angle G + \angle H = 180^\circ$  because:

$\Delta$  sum theorem





Use  $\triangle GHJ$ , where A, B, and C are midpoints of the sides.

14. If  $AB = 3x + 8$  and  $GJ = 2x + 24$ , what is AB?

$$AB = \frac{1}{2}GJ$$

$$3x + 8 = \frac{1}{2}(2x + 24)$$

$$3x + 8 = x + 12$$

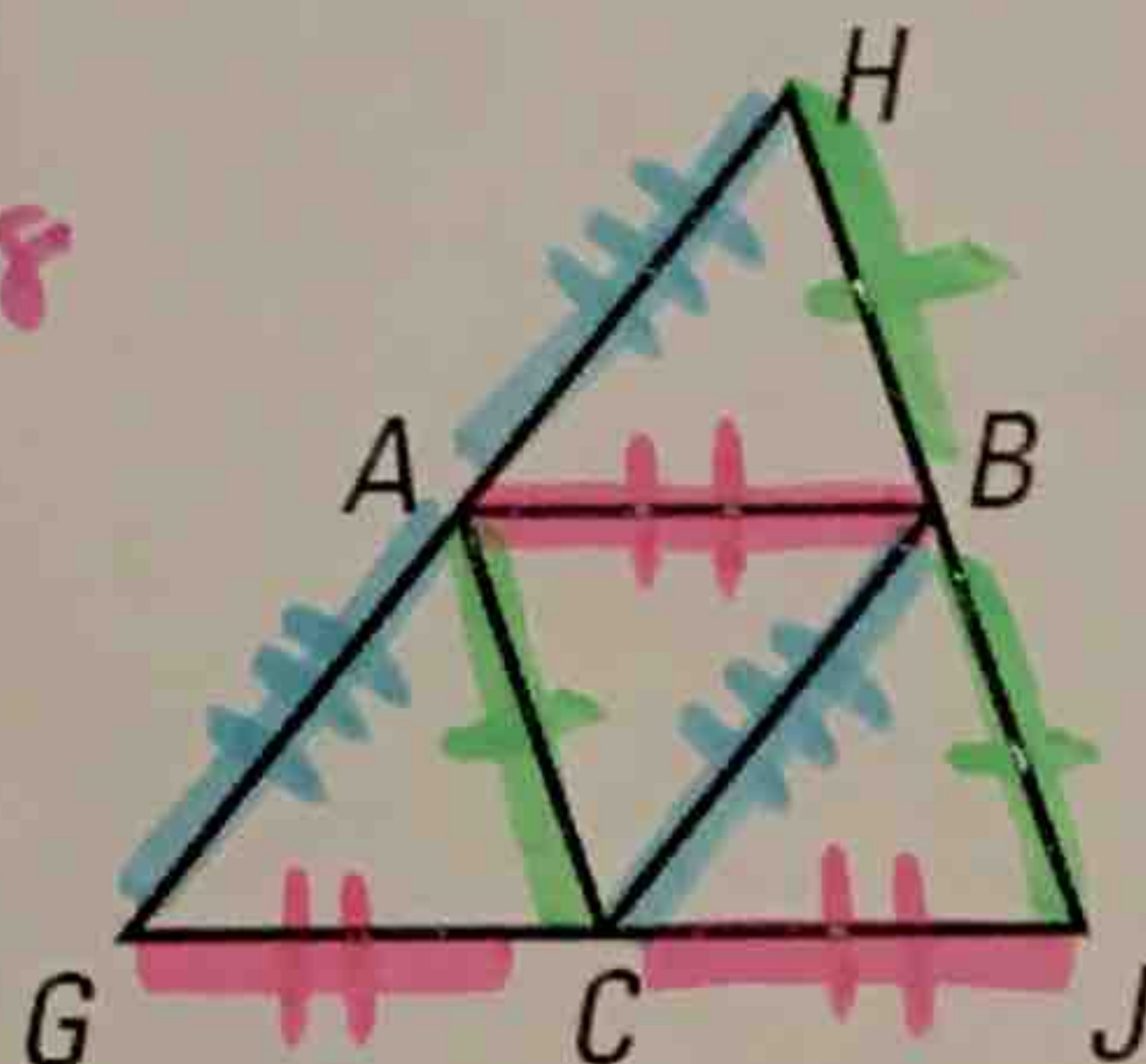
$$2x + 8 = 12$$

$$2x = 4$$

$$x = 2$$

$$AB = 3(2) + 8$$

$$AB = 14$$



15. If  $AC = 3y - 5$  and  $HJ = 4y + 2$ , what is HB?

$$AC = \frac{1}{2}HJ$$

$$3y - 5 = \frac{1}{2}(4y + 2)$$

$$3y - 5 = 2y + 1$$

$$y = 6$$

$$HB = AC$$

$$HB = 3(6) - 5$$

$$HB = 13$$

16. If  $GH = 7z - 1$  and  $BC = 4z - 3$ , what is GH?

$$BC = \frac{1}{2}GH$$

$$4z - 3 = \frac{1}{2}(7z - 1)$$

$$4z - 3 = 3.5z - 0.5$$

$$0.5z = 2.5$$

$$z = 5$$

$$GH = 7(5) - 1$$

$$GH = 34$$

17. a.  $\overline{DE}$  is the midsegment of which triangle?

$\triangle FBG$

b. What are the midpoints of  $\overline{AB}$  and  $\overline{BC}$ ?

AB's midpt is F  
BC's midpt is G

c. What is the length of  $\overline{AC}$ ?

$AC = 16$

