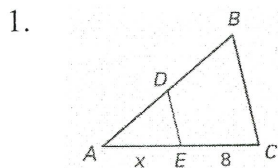
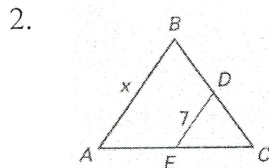


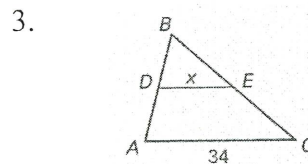
$\overline{DE}$  is a midsegment of  $\triangle ABC$ . Find the value of  $x$ .



$x = 8$  units



$x = 14$  units



$x = 17$  units

In  $\triangle XYZ$ ,  $J$  is the midpoint of  $\overline{XY}$ ,  $L$  is the midpoint of  $\overline{YZ}$  and  $K$  is the midpoint of  $\overline{ZX}$

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

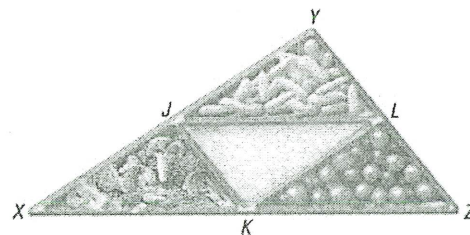
5.  $\overline{YJ} \cong \overline{XJ} \cong \overline{LK}$

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

7.  $\overline{YL} \cong \overline{XK} \cong \overline{KZ}$

8.  $\overline{YL} \parallel \overline{XZ}$

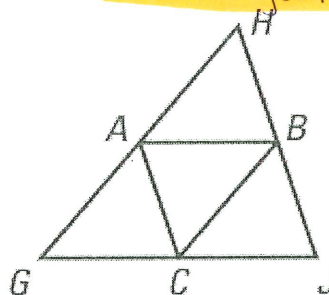
9.  $\overline{JK} \cong \overline{YL} \cong \overline{LZ}$



Use  $\triangle GHJ$ , where  $A$ ,  $B$  and  $C$  are midpoint of the sides for problems 10-12 **\* Show your work \***

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

$AB = 14$  units



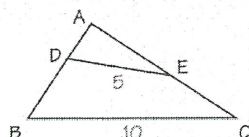
11. If  $AC = 3y - 5$  and  $HJ = 4y + 2$ , what is  $HJ$ ?

$HJ = 26$  units

12. If  $GA = 7z - 9$  and  $BC = 4z - 3$ , what is  $GH$ ?

$GH = 10$  units

13. Explain why the conclusion is incorrect.

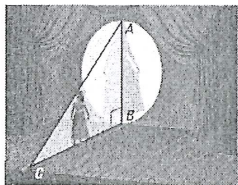


$DE = \frac{1}{2}BC$ , so by the Midsegment Theorem  $\overline{AD} \cong \overline{DB}$  and  $\overline{AE} \cong \overline{EC}$ .



Look @ def<sup>n</sup> of a Midsegment

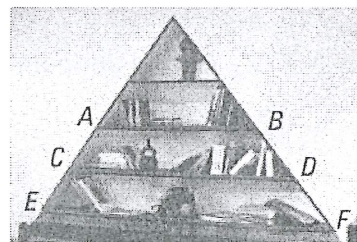
14. A floodlight on the edge of the stage shines upward onto the backdrop as shown. Diane is 5 feet tall. She stands halfway between the light and the backdrop, and the top of her head is at the midpoint of  $\overline{AC}$ . The edge of the light just reaches the top of her head. How tall is her shadow?



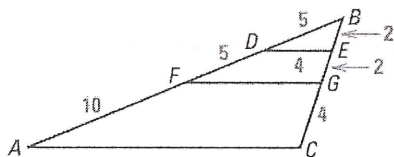
$AB = 10 \text{ ft}$

15. In the set of shelves shown, the third shelf, labeled  $\overline{CD}$ , is closer to the bottom shelf,  $\overline{EF}$ , than midsegment  $\overline{AB}$  is. If  $\overline{EF}$  is 8 feet long, is it possible for  $\overline{CD}$  to be 3 feet long? 4 feet long? 6 feet long? 8 feet long? Explain.

LOOK @ Example #5 in notes



16. Find the measure of AC.



$AC = 16 \text{ units}$

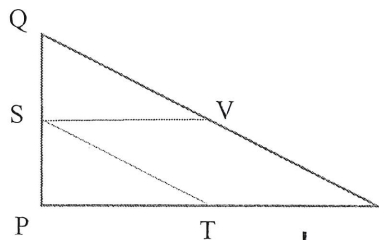
17. The **midpoints** of the three sides of a triangle are  $P(2, 0)$ ,  $Q(7, 12)$  and  $R(16, 0)$ . Find the length of each midsegment and the perimeter of  $\triangle PQR$ . The find the perimeter of the **original triangle**. \* Show your work \*

Perimeter of  $\triangle PQR = 42 \text{ units}$

Work \*

Perimeter of Original  $\triangle = 84 \text{ units}$

18. Given:  $\overline{QS} \cong \overline{SP}$ ,  $\overline{PT} \cong \overline{TR}$   
 Prove:  $\overline{QR} \parallel \overline{ST}$



Statement	Reason
1. $\overline{QS} \cong \overline{SP}$ $\overline{PT} \cong \overline{TR}$	1. Given
2. S is mdpt of $\overline{QP}$ T is mdpt of $\overline{PR}$	2. Definition of a midpoint
3. $\overline{ST}$ is a midsegment of $\triangle PQR$	3. Def <sup>n</sup> of a Midsegment
4. $\overline{QR} \parallel \overline{ST}$	4. Midsegment Theorem