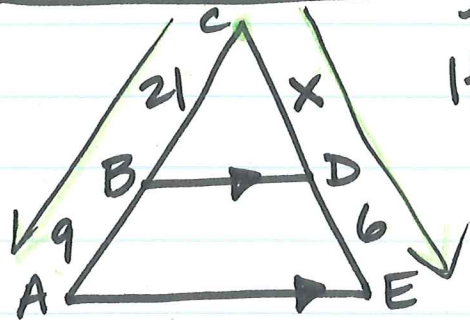


# 7-4 Parallel Lines & Proportional Parts

△ Proportionality Th.:



If  $\overline{BD} \parallel \overline{AE}$ , then

$$\frac{CB}{BA} = \frac{CD}{DE}$$

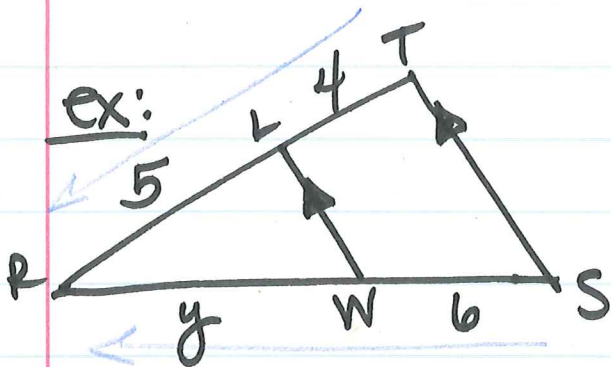
ex: Find  $x$ .

~~$$\frac{21}{9} = \frac{x}{6}$$~~

$$x = 14$$

~~$$\frac{9x}{9} = \frac{126}{9}$$~~

$$CD = 14$$



Solve for  $RW$ .

~~$$\frac{4}{5} = \frac{6}{y}$$~~

$$\frac{5}{4} = \frac{y}{6}$$

$$\frac{30}{4} = \frac{4y}{4}$$

$$y = 7.5$$

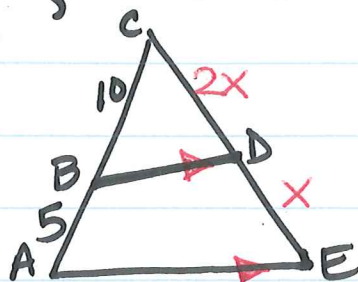
$$RW = 7.5$$

$$RS = 7.5 + 6$$

$$RS = 13.5$$

### Converse of $\Delta$ Proportionality Th:

If  $\frac{CB}{BA} = \frac{CD}{DE}$ , then lines are  $\parallel$ .



EX:  $AB = 5$ ,  $BC = 10$  and  $\overline{CD}$  is twice the length of  $\overline{DE}$ . Determine whether  $\overline{BD} \parallel \overline{AE}$ .

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

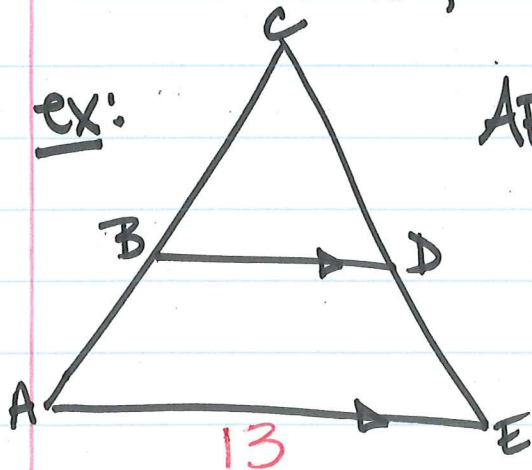
$$10x = 10x \checkmark$$

So lines are  $\parallel$ .

### $\Delta$ Midsegment Th:

A midsegment is  $\parallel$  to one side of  $\Delta$  with endpoints which are midpts. of 2 sides of a  $\Delta$ .

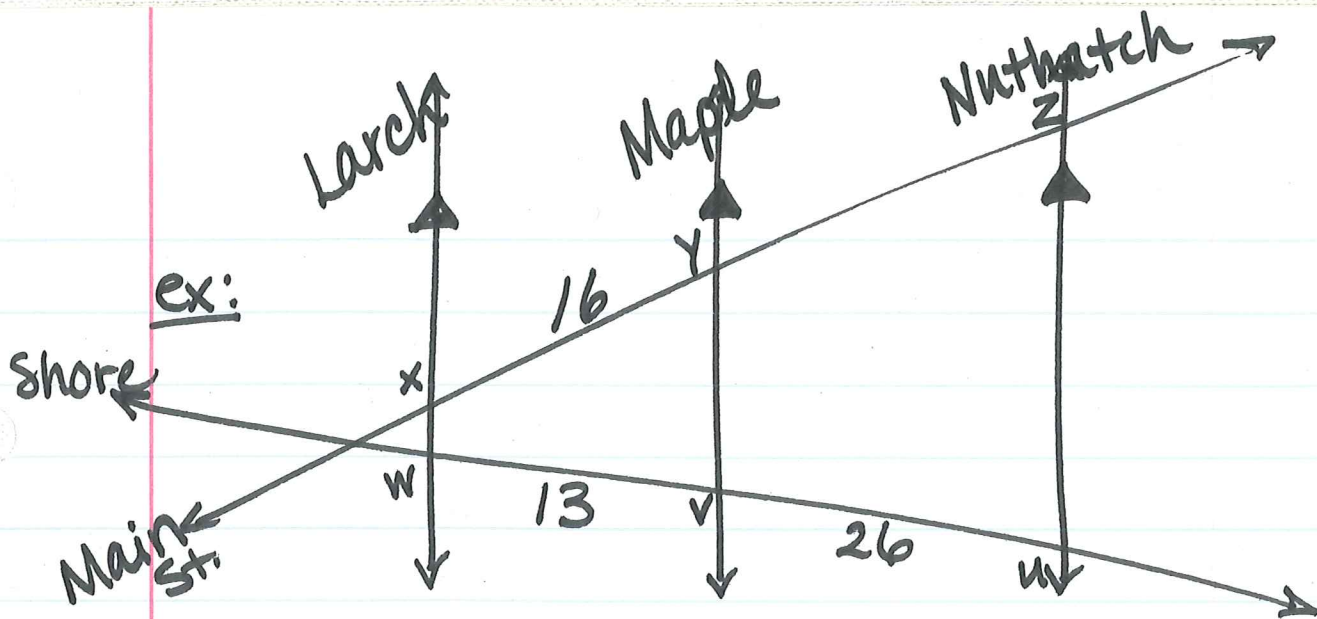
If  $\overline{BD} \parallel \overline{AE}$ , then  $BD = \frac{1}{2}AE$ .



$AE = 13$ , find  $BD$ .

$$BD = \frac{1}{2}(13)$$

$$BD = 7.5$$



What is the distance from Maple to Nuthatch on Main Street?

$$\frac{16}{(yz)} = \frac{13}{26}$$

$$yz = 32$$

$$\frac{4 \cdot 16}{13} = \frac{13 \cdot (yz)}{13}$$