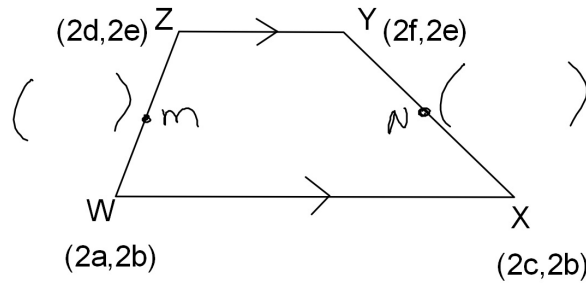
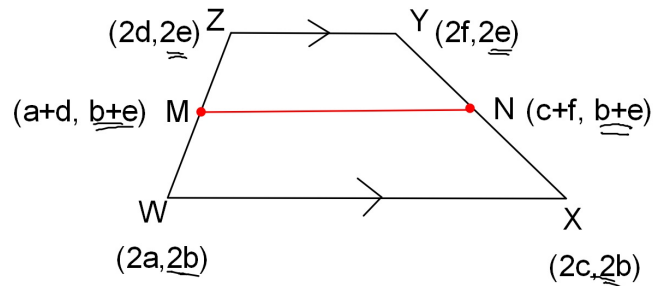
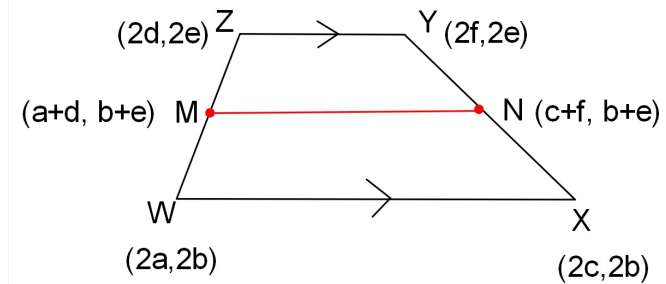


WXYZ is a Trapezoid.



Find the coordinates of the midpoints of the legs. Label these points M and N

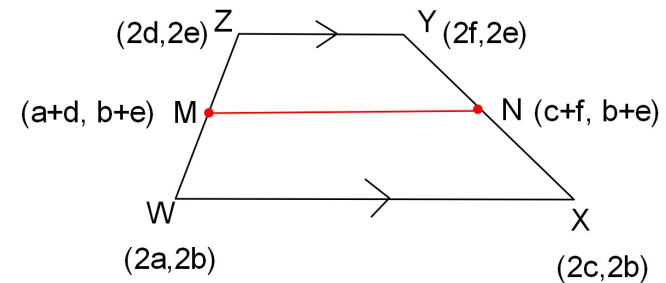
What name would you give \overline{MN} ? Midsegment of a Trapezoid



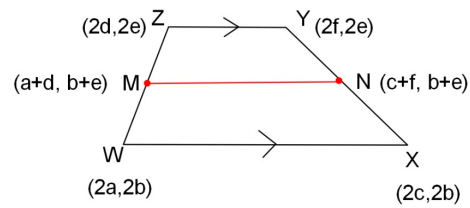
Show that \overline{MN} is parallel to both \overline{WX} and \overline{ZY}

$$\begin{aligned} ZY \quad m &= \frac{2e - 2e}{2d - 2f} = \frac{0}{2d - 2f} = 0 \\ MN \quad m &= \frac{(b+e) - (b+e)}{(c+f) - (a+d)} = \frac{0}{(c+f) - (a+d)} = 0 \\ WX \quad m &= \frac{2b - 2b}{2c - 2a} = \frac{0}{2c - 2a} = 0 \end{aligned}$$

slopes are = so ALL 3 Lines are parallel

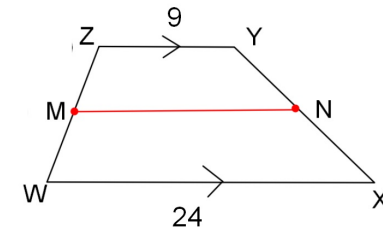


What do you think is the relationship between the length of \overline{MN} and the lengths of \overline{WX} and \overline{ZY} ?



$$MN = \frac{1}{2}(WX + ZY)$$

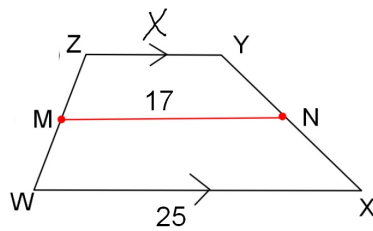
The length of the midsegment is the average of the two bases.



Find the length of MN.

$$\frac{24 + 9}{2} = MN$$

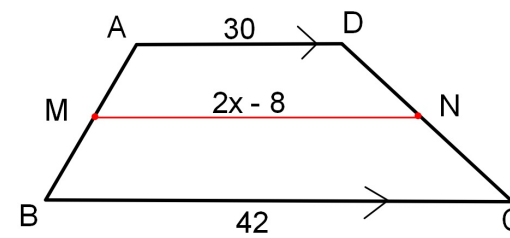
$$16\frac{1}{2} = MN = 16.5$$



Find the length of ZY.

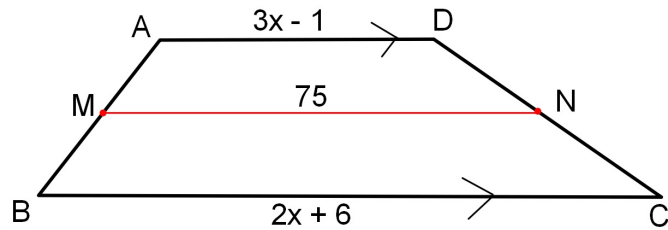
$$\begin{aligned} 2 \cdot \frac{25 + x}{2} &= 17 \cdot 2 \\ 25 + x &= 34 \\ -25 &\quad -25 \\ x &= 9 \end{aligned}$$

Find the value of x. M and N are midpoints.



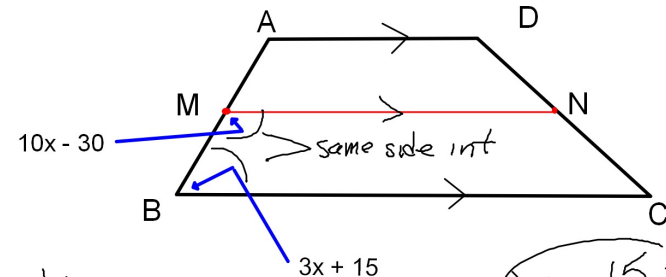
$$\begin{aligned} 2x - 8 &= \frac{30 + 42}{2} \\ 2x - 8 &= 36 \\ x &= 22 \end{aligned}$$

Find the value of x . M and N are midpoints.



$$\begin{aligned} 2. \frac{2x+6 + 3x-1}{2} &= 75 \cdot 2 \\ 5x+5 &= 150 \\ x &= 29 \end{aligned}$$

Find the value of x . M and N are midpoints.

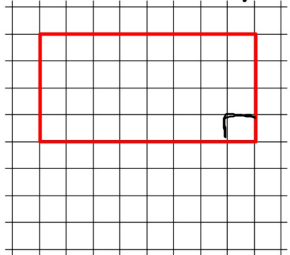


$$\begin{aligned} 10x-30 + 3x+15 &= 180 \\ 13x-15 &= 180 \\ 13x &= 195 \end{aligned}$$

$$x = 15$$

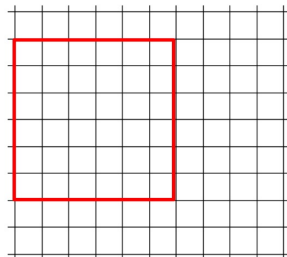
Find the area of each figure.

1. Rectangle



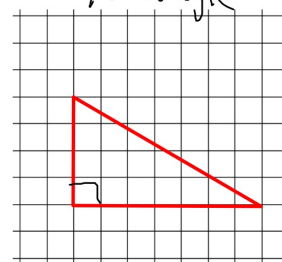
$$A = b \cdot h = 32$$

2. Square



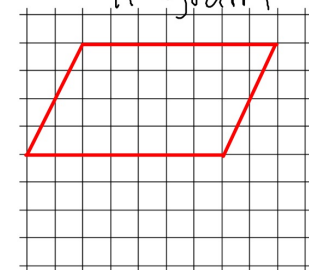
$$A = b \cdot h = s^2 = 36$$

3. Triangle



$$\frac{1}{2}bh = 14$$

4. ll-gram



$$A = bh = 28$$

Area of a Rectangle: $A = b \cdot h$



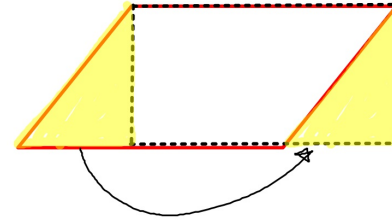
Area of a Square: $A = s^2$



Section 10-1: Areas of Parallelograms and Triangles.



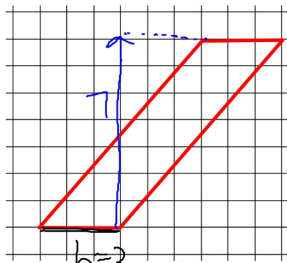
You can turn a Parallelogram into a rectangle by cutting off one side and translating it to the opposite side.



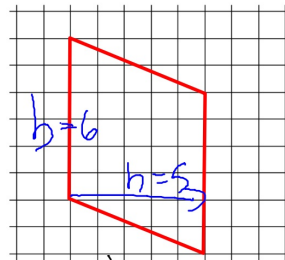
Area of a Parallelogram:

$$A = b \cdot h$$

Find the area of each parallelogram.



$$b \cdot h = 3 \cdot 7 = 21$$

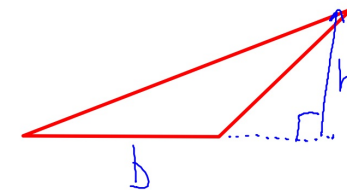
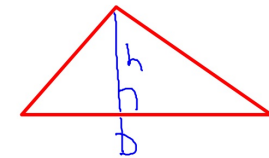
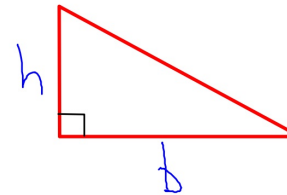


$$b \cdot h = 6 \cdot 5 = 30$$

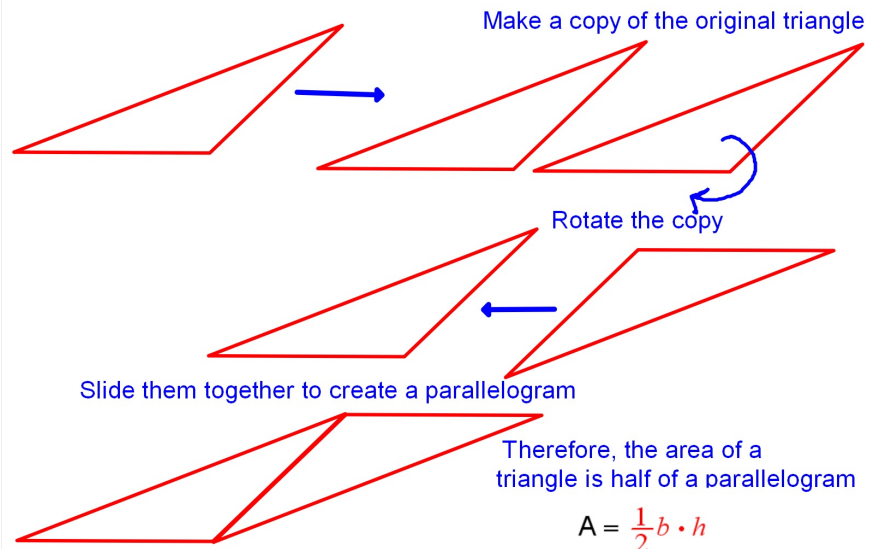
The area of a Triangle.

Base and Height must be PERPENDICULAR

$$A = \frac{1}{2} b \cdot h$$



Every triangle is half of a parallelogram.



Find the area of each triangle.

