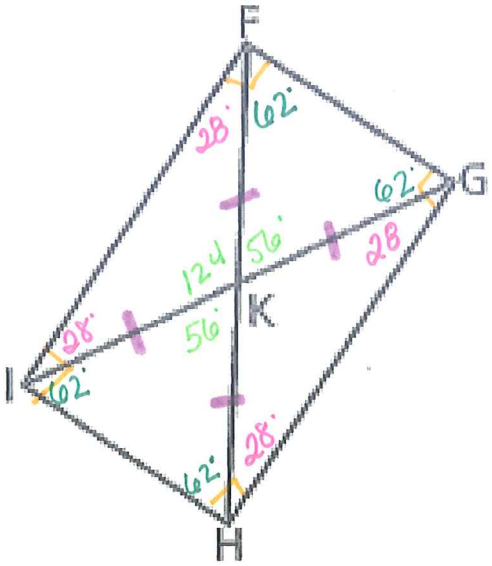
RECTANGLE NOTES

Properties of Rectangles – a parallelogram with four right angles.

- Opposite sides of a parallelogram are congruent
- Opposite angles of a parallelogram are congruent
- Consecutive angles of a parallelogram are supplementary
- The sum of the angles of a parallelogram are $180(4-2) = 180 \cdot 2 = 360°$
- The diagonals of a parallelogram bisect each other
- The diagonals are congruent

1. If m<HFG= 62°, fill in all of the other angle measures, if FGHI is a rectangle.

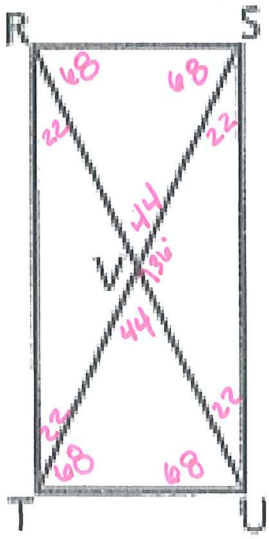


yay ≅

Make sure to use the fact that the ≅ bisected diagonals form isosceles Δs which makes ≅ base angles

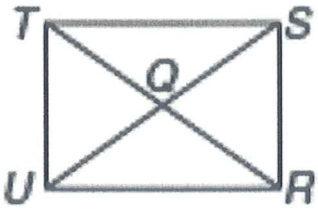
<RVT oops sorry!

2. If m<RTV= 136°, fill in all of the other angle measure if RSTU is a rectangle .



3. Use rectangle RSTU and state the property you used.

a.) If US= 6x + 3 and RT = 7x – 2. Find x. ←



$US \cong RT$ diagonals of a Rectangle are $\cong$

$6x+3=7x-2$

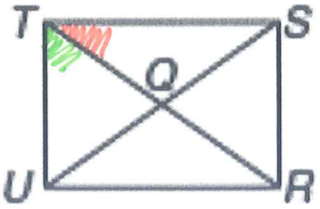
$-6x \quad -6x$

$3=x-2$

$+2 \quad +2$

$\boxed{5=x}$

b.) If m<STR = 8x + 3 and m<UTR = 16x – 9. Find x and m<STR.



$\angle STR + \angle UTR = 90°$

$8x+3+16x-9=90$

$24x-6=90$

$+6 \quad +6$

$24x=96$

$\boxed{x=4}$

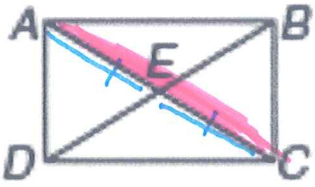
def of Rectangle a parallelogram w/ 4 Right ∠s.

$\angle STR = 8(4)+3$

$\boxed{\angle STR = 35°}$

4. Use rectangle ABCD and state the property you used.

a.) If AE = 3x + 3 and EC = 5x – 15. Find x and AC.



diags bisect each other

$AE = EC$

$3x+3=5x-15$

$-3x \quad -3x$

$3=2x-15$

$+15 \quad +15$

$18=2x$

$\frac{18}{2}=\frac{2x}{2}$

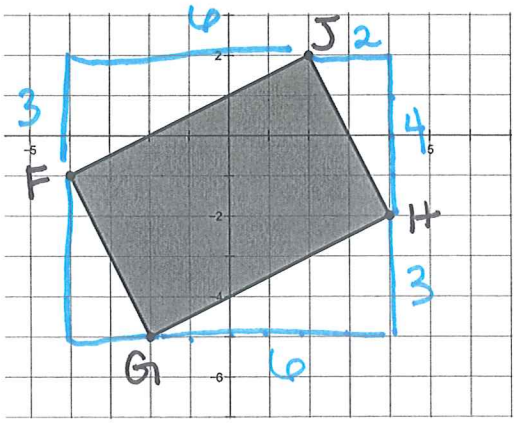
$\boxed{9=x}$

$AC = 3(9)+3+5(9)-15$

$\boxed{AC = 60}$

5. Determine whether the figure with vertices F(-4,-1),G(-2,-5), H(4,-2) and J(2,2) is a rectangle.

To be a rectangle, you must test for 4 Right angles



Testing for Right ∠s means ⊥ slopes #s must be opposite reciprocals.

Slope $JH = -\frac{4}{2} = -2$

Slope $GH = \frac{3}{6} = \frac{1}{2}$ ⊥

Slope $FG = -\frac{4}{2} = 2$ ⊥

Slope $FJ = \frac{3}{6} = \frac{1}{2}$ ⊥

Must conclude

all consecutive sides are ⊥ so it has 4 Right ∠s

∴ FGHJ is a Rectangle