

Naming Angles and Angle Addition Algebra

- 1.) Find $m\angle AKJ$ if $m\angle LKJ = 173^\circ$ and $m\angle LKA = 22^\circ$



Solution
 $m\angle AKJ = 360^\circ - (m\angle LKJ + m\angle LKA)$

$$\Rightarrow 360^\circ - (173 + 22)^\circ = 165^\circ$$

$m\angle AKJ = 165^\circ$

Solution

$$m\angle STU = m\angle STK + m\angle KTV$$

$$\Rightarrow (18x + 3)^\circ = (8x + 2)^\circ + 51^\circ$$

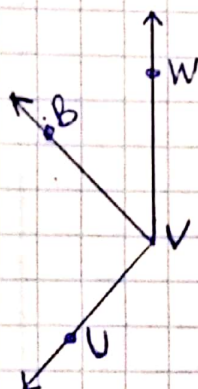
Taking like terms together

$$(18x - 8x) = 2 + 3 + 51$$

$$\frac{10x}{10} = \frac{56}{10}$$

$$\underline{x = 5}$$

- 2.) $m\angle UVW = 151^\circ$ and $m\angle UVB = 115^\circ$
 Find $m\angle BVW$



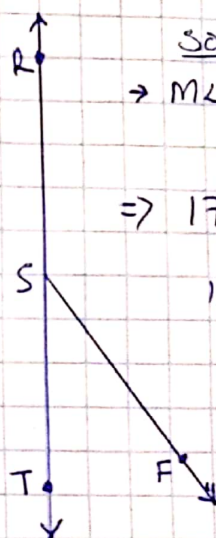
Solution
 $(m\angle UVW) + (m\angle UVB) + (m\angle BVW) = 360^\circ$

Thus:
 $m\angle BVW = 360^\circ - (m\angle UVW) - (m\angle UVB)$

$$= 360^\circ - 115^\circ - 151^\circ$$

$m\angle BVW = 94^\circ$

- 4.) $m\angle RSF = 58x - 1$, $m\angle FST = 30x + 3$ and $m\angle RST = 178^\circ$. Find x .



Solution
 $\rightarrow m\angle RST = (m\angle RSF) + (m\angle FST)$

$$\Rightarrow 178^\circ = (58x - 1) + (30x + 3)$$

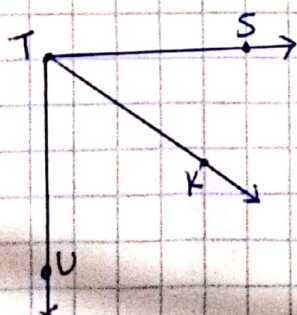
$$178 = 88x + 2$$

$$88x = 178 - 2$$

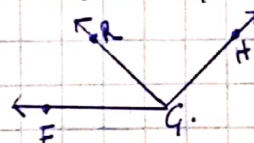
$$\frac{88x}{88} = \frac{176}{88}$$

$$\underline{x = 2}$$

- 3.) $m\angle KTV = 51^\circ$, $m\angle STK = 8x + 2$, and $m\angle STU = 18x + 3$. Find x .



- 5.) $m\angle FGR = 30x + 1$, $m\angle FGH = 131^\circ$, and $m\angle RGH = 34x + 2$. Find x .



Solution

$$\Rightarrow m\angle FGH = (m\angle FGR) + (m\angle RGH)$$

$$\Rightarrow 131^\circ = (30x + 1) + (34x + 2)$$

$$131 = 64x + 3$$

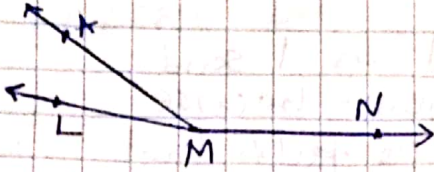
$$64x = 131 - 3$$

$$64x = 128$$

$$\underline{x = 2}$$

6)

Find x if $m\angle AMN = 10x + 3$,
 $m\angle LMA = 2x + 4$, and
 $m\angle LMN = 151^\circ$



Solution

$$\Rightarrow (m\angle LMA) + (m\angle AMN) = m\angle LMN$$

$$\Rightarrow (10x + 3) + (2x + 4) = 151$$

$$= 12x + 7 = 151$$

$$= 12x = 151 - 7$$

$$12x = 144$$

$$\underline{x = 12}$$

7). $m\angle GHU = 6x + 3$, $m\angle GHI = 174^\circ$,
 and $m\angle UHI = 27x + 6$. Find x .