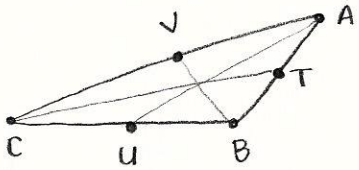
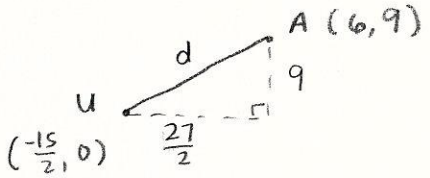
10. A(6,9) B(0,0) C(-15,0)

The centroid is (-3,3)

The midpoints of ΔABC are $T(3, \frac{9}{2})$ $U(\frac{-15}{2}, 0)$ $V(\frac{-9}{2}, \frac{9}{2})$



• Find the distance of $\overline{AU}$.



$d^2 = (\frac{27}{2})^2 + 9^2$

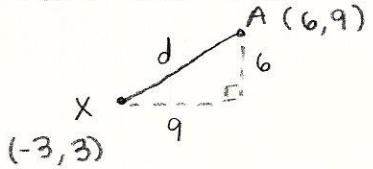
$d^2 = \frac{729}{4} + 81$

$d^2 = \frac{1053}{4}$

$d = \frac{3\sqrt{117}}{2}$

The distance from A to U is $\frac{3\sqrt{117}}{2}$ units.

• Find the distance of $\overline{XA}$ (the centroid to A)



$d^2 = 9^2 + 6^2$

$d^2 = 81 + 36$

$d^2 = 117$

$d = \sqrt{117}$

• $\frac{2}{3}\overline{AU} = \overline{AX}$ by the centroid Theorem.

$\frac{2}{3}(\frac{3\sqrt{117}}{2}) = \sqrt{117}$

$\sqrt{117} = \sqrt{117}$ ✓

Therefore, x is $\frac{2}{3}$ the distance from A.

*Do the same process for the other two medians.