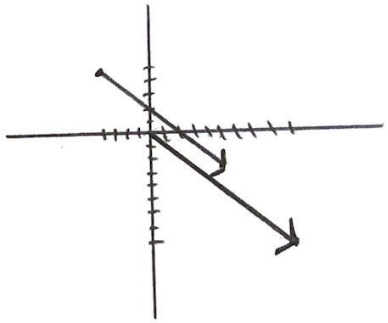
Warmup #7: Vector Review

1. Given vector $\overrightarrow{HA}$ having points H($\overset{x_1}{-4},\overset{y_1}{5}$) and A($\overset{x_2}{5},\overset{y_2}{-3}$)...

a.) Write in component form. $\langle 5-{-4}, -3-5\rangle = \boxed{\langle 9, -8\rangle}$

b.) Write as a sum of unit vectors. $\boxed{9i-8j}$

c.) Sketch the vector in standard position. → tail on origin



d.) Find the magnitude. (Simplified radical.)

$\sqrt{x^2+y^2} = \sqrt{(9)^2+(-8)^2} = \sqrt{81+64} = \boxed{\sqrt{145}}$

e.) Find the direction. (Nearest hundredth.)

$\tan\theta' = \frac{y}{x}$

$\theta' = \tan^{-1}\frac{y}{x}$

$\theta' = \tan^{-1}\frac{-8}{9}$

$\theta' = -41.63° = 41.63°$ (reference angle)

$360 - 41.63 = \boxed{318.37°}$