Eva enters a walkathon that covers a total distance of *16* miles. She runs part of the distance at a rate of *6* mph and walks the remaining distance at a rate of *3* mph, completing the course in *4* hours and *30* minutes. How far did Eva run? How many hours did she run?

- We will use the formula: *distance = rate x time, d = r x t*

- Let *x* be the distance that Eva runs. Then $16 - x$ is the distance that that Eva walks.

- Since $t = \dfrac{d}{r}$, $\dfrac{x}{6}$ is the time Eva spent running and $\dfrac{16-x}{3}$ is the time she spent walking.

- Her total time is *4* hours and *30* minutes or *4.5* hours. Then

- $\dfrac{x}{6} + \dfrac{16-x}{3} = 4.5$

- Solving this equation for *x* : $x + 2(16-x) = 6(4.5)$, $-x + 32 = 27$, $x = 5\,miles$
  Eva ran for $\dfrac{5}{3}$ hours or *1* hour and *40 minutes.*