

You probably set up your equation incorrectly. Let $t =$ the time, in hours, it takes the owner to frame one poster. Then $4t =$ the amount of time it takes the apprentice. Their rates are $\frac{1}{t}$ and $\frac{1}{4t}$ posters per hour. Add these rates to get the combined rate of the owner and her apprentice. Then use rate times time equals amount of work done.