The quantity $V$ varies directly with quantity $t$ and inversely with quantity $P$. When $P = 2$ and $t = 4$, $V = 12$. What is the value of $V$ when $t = 5$ and $P = 3$?

Solution. The model is $V = \frac{kt}{P}$. The given information can be used to find $k$: $k = \frac{VP}{t} = \frac{12 \cdot 2}{4} = 6$. Therefore, $V = \frac{6t}{P} = \frac{6 \cdot 5}{3} = 10$. 