

Dimensional Analysis of double units

m mi
 }
 single units

$\frac{g}{mL}$ $\frac{mi}{hr}$
 }
 double units

$$20 \frac{mi}{hr} \longrightarrow \frac{ft}{min}$$

changing 2 things:
 - top unit
 - bottom unit

Steps:

- ① convert the top unit
- ② convert the bottom unit

$$\frac{mi}{hr} \longrightarrow \frac{ft}{min}$$

$$hr \rightarrow min$$

$$1 hr = 60 min$$

$20 \cancel{mi}$	5280 ft	$1 \cancel{hr}$	$= 1760 \frac{ft}{min}$
$1 \cancel{hr}$	$1 \cancel{mi}$	60 min	

$$8000 \frac{in}{sec} \longrightarrow \frac{mi}{hr}$$

$$\frac{in}{sec} \longrightarrow \frac{ft}{min} \longrightarrow \frac{mi}{hr}$$

$8000 \cancel{in}$	$1 \cancel{ft}$	1 mi	$60 \cancel{sec}$	$60 \cancel{min}$
$1 \cancel{sec}$	$12 \cancel{in}$	$5280 \cancel{ft}$	$1 \cancel{min}$	1 hr

$= 454.5 \frac{mi}{hr}$