

A takes 9 hrs to build chimney alone

B takes 10 hrs to build chimney alone

Working together → combined output  
decreases by 10  
bricks per hour

→ build chimney in 5 hrs

How many bricks in chimney?

A :  $a$  bricks/hr

Takes 9 hrs  $\Rightarrow$  chimney has  $9a$   
bricks

B :  $b$  bricks/hr

Takes 10 hrs  $\Rightarrow$  chimney has  $10b$   
bricks

Working together :  $a+b-10$  bricks/hr

Takes 5 hrs  $\Rightarrow$  chimney has  
 $5(a+b-10)$  bricks

Simultaneous eqns :

$$\textcircled{1} \quad 9a = 10b$$

$$\textcircled{2} \quad 10b = 5a + 5b - 50$$

$$\textcircled{2} \Rightarrow 5b = 5a - 50$$

$$\Rightarrow 10b = 10a - 100$$

Sub into ① :

$$9a = 10a - 100$$

$$\Rightarrow 100 = a$$

The chimney has  $9a = 900$  bricks

