

Working together, printer A and printer B would finish the task in 24 min. Printer A alone would finish the task in 60 minutes. How many pages does the task contain if printer B prints 5 pages a minute more than printer A?

Solution:

rate of work together:  $\frac{1}{24} \frac{\text{task}}{\text{min}}$

printer A alone:  $\frac{1}{60} \frac{\text{task}}{\text{min}}$

we can calculate rate of work of printer B (alone):

$$\frac{1}{24} - \frac{1}{60} = \frac{5}{120} - \frac{2}{120} = \frac{3}{120} \Rightarrow \frac{1}{40} \frac{\text{task}}{\text{min}}$$

Rate of printer B > rate of printer A  
(indeed  $\frac{1}{40} > \frac{1}{60}$ )

rate difference:

$$\frac{1}{40} - \frac{1}{60} = \frac{3}{120} - \frac{2}{120} = \frac{1}{120} \frac{\text{task}}{\text{min}}$$

In one minute printer B prints  $\frac{1}{120}$  task more which is 5 pages:

$\frac{1}{120}$  task = 5 pages; multiply through by 120

1 task = 600 pages

Answer: 600 pages