

- 35.** It takes two decorators 8 days to paint a house. One is lazy and one is energetic. The energetic one could paint the house in 12 days on his own. How many days would it take the lazy one to paint the house on his own?

17 To complete a task in 15 days a company needs
4 people each working for 8 hours per day.

The company decides to have
5 people each working for 6 hours per day.

Assume that each person works at the same rate.

17 (a) How many days will the task take to complete?
You **must** show your working.

[3 marks]

19. If Mark can mow the lawn in 40 minutes and Audrey can mow the lawn in 50 minutes, which equation can be used to determine how long it would take the two of them to mow the lawn together?

a. $\frac{40}{x} + \frac{50}{x} = 1$

b. $\frac{x}{40} + \frac{x}{50} = 1$

c. $\frac{1}{x} + \frac{1}{x} = 90$

d. $50x + 40x = 1$

e. $90x = \frac{1}{x}$

30. Near a large city, planes take off from two airfields. One of the fields is capable of sending up a plane every 3 minutes. The other field is capable of sending up 2 planes every 7 minutes. At these rates, which of the following is the most reasonable estimate of the total number of planes the two airfields could send up in 90 minutes?

F. 18
G. 27
H. 36
J. 44
K. 55

$$\frac{2}{7} = \frac{x}{90} \quad 180 = 7x$$
$$25.7 = x$$
$$\frac{1}{3} = \frac{y}{90} \quad 30 = y$$

FIND OUT HOW MANY
PLANES EACH AIRFIELD CAN
TAKE OFF IN 90 MINUTES THEN
ADD THEM TOGETHER

CAN'T HAVE 0.7 OF A PLANE. $30 + 25 = 55$

Example: It would take Sam 3 hours to paint a room. It would take Joe twice as long to do it by himself. How long would it take both of them working together?

Example: One machine can do 5 loads in 60 minutes. Machine 2 can do 3 loads in 30 minutes. How many loads can be done if both machines are working for 45 minutes.

$$\frac{5 \text{ loads}}{60 \text{ minutes}} + \frac{3 \text{ loads}}{30 \text{ minutes}} = \frac{x}{45 \text{ minutes}}$$

$$\frac{5}{60} + \frac{6}{60} = \frac{x}{45}$$

$$\frac{11}{60} = \frac{x}{45} = \frac{45 \times 11}{60} = 8.25 = x$$

Example: If 2 people can do a job in 12 minutes and 1 person can do the job in 30 min. how long does it take the other person to do the job alone?

Think \rightarrow How much of the job can they do in ONE MINUTE. Two can do $\frac{1}{12}$ of the job in 1 minute

More Examples: A does a job in six days,
B does the same job in 3 days
How long will it take both of them together?

think \rightarrow What can they do in ONE DAY

Example: A + B together can finish in $4\frac{1}{2}$ days. B alone can do it in 10 days. How long will it take for A to do it alone?

Pump 1 fills pool in 20 min. $\rightarrow \frac{1}{20}$ of pool in 1 minute
Pump 2 fills pool in 30 min. $\rightarrow \frac{1}{30}$ of pool in 1 minute
Pump 3 fills pool in 10 min. $\rightarrow \frac{1}{10}$ of pool in 1 minute

How long will it take all 3 to fill the pool