

1

Jane can paint the wall in J hours, and Bill can paint the same wall in B hours. They begin at noon together. If J and B are both even numbers is $J=B$?

- (1) Jane and Bill finish at 4:48 p.m.
- (2) $(J+B)^2=400$

2

Machines X and Y produced identical bottles at different constant rates. Machine X, operating alone for 4 hours, filled part of a production lot; then Machine Y, operating alone for 3 hours, filled the rest of this lot. How many hours would it have taken Machine X operating alone to fill the entire production lot?

- (1) Machine X produced 30 bottles per minute.
- (2) Machine X produced twice as many bottles in 4 hours as Machine Y produced in 3 hours.

3

If Ruth began a job and worked continuously until she finished, at what time of day did she finish the job?

- (1) She started the job at 8:15 a.m. and at noon of the same day she had worked exactly half of the time that it took her to do the whole job.
- (2) She was finished exactly 7.5 hours after she had started.

4

An empty swimming pool with a capacity of 75,000 liters is to be filled by hoses X and Y simultaneously. If the amount of water flowing from each hose is independent of the amount flowing from the other hose, how long, in hours, will it take to fill the pool?

- (1) If hose X stopped filling the pool after hoses X and Y had filled half the pool, it would take 21 hours to fill the pool.
- (2) If hose Y stopped filling the pool after hoses X and Y had filled half the pool, it would take 16 hours to fill the pool.

5

Machines X and Y run simultaneously at their respective constant rates. If machine X produces 400 bolts per hour, how many bolts do machines X and Y produce per hour?

- (1) Machine X takes twice as long to produce 400 bolts as it does for machines X and Y, working together, to produce the same number of bolts.
- (2) Machines X and Y produce bolts at the same rate.