

How to use this worksheet. Fifteen questions, about 20 minutes, with the answer key at the end. Never average two work-times directly — convert to a daily rate, combine, then convert back. For mixed groups, express every worker in one common unit first.

Formula sheet

Convert every 'days taken' into a daily rate (1/days) before combining anything | add rates for working together, never average the times

For pipes emptying a tank, subtract the emptying rate rather than adding it

To compare men, women, boys or pipes, convert everyone into a single common unit using their relative outputs

$M1D1 = M2D2$ holds only when the total work stays exactly the same

Section A · Basic time and work — Individual rates, combined work, and pipes

Eight questions. Convert every 'days taken' into a daily rate first.

1. A can finish a piece of work in 10 days. In one day, A completes:
(1) $\frac{1}{5}$ of the work (2) $\frac{1}{10}$ of the work (3) 10 times the work (4) The whole work
2. A can do a piece of work in 10 days and B in 15 days. Working together, they will finish it in:
(1) 5 days (2) 6 days (3) 12.5 days (4) 25 days
3. A can do a work in 12 days and B in 18 days. Working together, they will finish it in:
(1) 6 days (2) 7.2 days (3) 15 days (4) 30 days
4. A is twice as efficient as B. If they can together finish a job in 12 days, A alone will take:
(1) 16 days (2) 18 days (3) 24 days (4) 36 days
5. If A can do a work in 10 days and B in 15 days, and A works alone for 3 days before leaving, B will finish the remaining work in:
(1) 9 days (2) 10.5 days (3) 12 days (4) 13.5 days
6. 15 men can build a wall in 8 days. In how many days will 10 men build the same wall?
(1) 10 days (2) 12 days (3) 5.3 days (4) 16 days
7. A tap fills a tank in 6 hours and another tap empties it in 8 hours. If both are opened together, the tank fills in:
(1) 14 hours (2) 24 hours (3) 48 hours (4) 2 hours
8. A tap fills a tank in 6 hours and another empties it in 12 hours. With both open, the tank fills in:
(1) 4 hours (2) 12 hours (3) 18 hours (4) It never fills

Working space — Questions 1 to 8

Write the formula before you substitute.

Section B · Ratios of workers — Men, women, boys and mixed groups

Four questions. Convert every group into a single common unit before combining.

9. 15 men or 24 women can complete a piece of work in 20 days. How many days will 10 men and 12 women take to complete the same work?
(1) 15 days (2) 17.1 days (3) 20 days (4) 12 days
10. 6 men and 8 boys can do a piece of work in 10 days, while 26 men and 48 boys can do the same work in 2 days. The ratio of the daily work done by one man to that of one boy is:
(1) 1 : 1 (2) 1 : 2 (3) 2 : 1 (4) 3 : 1

11. A can do a piece of work in 20 days. He works at it for 5 days and then B finishes the remaining work in 15 days. In how many days can A and B together finish the whole work?

(1) 10 days (2) 12 days (3) 15 days (4) 18 days

12. If 6 women or 10 girls can do a piece of work in 15 days, how long will 9 women and 5 girls take to do twice the amount of work?

(1) 10 days (2) 15 days (3) 18 days (4) 20 days

Working space — Questions 9 to 12

Write the formula before you substitute.

Section C · Previous year questions — Straight from the AAI ATC papers

Three questions. All three are real previous year questions.

13. Raj and Rajat can finish a piece of work in 30 days and 40 days respectively. Raj started the work alone. After how many days should Rajat join him so that the work is finished in 24 days? **[PYQ 2021 · Shift 3]**

(1) 14 days (2) 10 days (3) 12 days (4) 16 days

14. A certain number of men can finish a piece of work in 40 days. If there were 4 men fewer, it would take 4 days more. How many men were there initially? **[PYQ 2021 · Shift 3]**

(1) 44 (2) 38 (3) 42 (4) 36

15. A tank $8\text{ ft} \times 5\text{ ft} \times 3\text{ ft}$ has a supply pipe pouring in 480 in^3 of water per minute and an exhaust pipe emptying it in 4 hours. If the tank is full and both pipes are open, how many hours will it take to empty? **[PYQ 2021 · Shift 2]**

(1) 9 hrs (2) 7 hrs (3) 6 hrs (4) 8 hrs

Working space — Questions 13 to 15

Write the formula before you substitute.

Answer key

Check only after you have attempted every question. Full worked solutions for each one are on the worksheet page at aviatelearnings.com.

1. (2)	4. (2)	7. (2)	10. (3)	13. (4)
2. (2)	5. (2)	8. (2)	11. (2)	14. (1)
3. (2)	6. (2)	9. (2)	12. (2)	15. (1)

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