

The Work-Rate Setup Trap

Rising Grade 8 math word-problem mini-lesson

Parent note

Give this as a 6-minute check. The goal is to see whether the student sets up rates instead of combining times.

Question

Pipe A can fill a tank in 6 hours. Pipe B can fill the same tank in 12 hours. If both pipes run together, how many hours will it take to fill the tank?

- (A) 3
- (B) 4
- (C) 6
- (D) 9

Answer and explanation

Correct answer: B

Pipe A fills $\frac{1}{6}$ of the tank per hour. Pipe B fills $\frac{1}{12}$ of the tank per hour. Together they fill $\frac{1}{6} + \frac{1}{12} = \frac{3}{12} = \frac{1}{4}$ of the tank per hour. If $\frac{1}{4}$ of the tank is filled each hour, the full tank takes 4 hours.

Common wrong move: averaging 6 and 12, adding the hours, or choosing 6 because it is the faster pipe's time. The setup must use rates.

Next step

If this was hard, sort the miss as a setup error. Then use the free tracker after the next practice set.

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