Question #39157, Math, Algebra

A tank can be filled with 2 pipes in 6 minutes while the first pipe alone would require 10 minutes. How long will it take for the second pipe alone to fill the tank?

Solution

Let *V* and *x* denote the tank volume and the time needed for the second pipe alone to fill the tank. Then the part of tank filled in one minute by the first pipe is equal to V/10, by the second pipe – V/*x*, and by the two pipes – *V*/6. So we have the equation

$$\frac{V}{10} + \frac{V}{x} = \frac{V}{6}.$$

Multiplying the both sides by 30*x*/V to clear fractions we obtain

3*x* + 30 = 5*x*, 2*x* = 30 and *x*=15.

Thus time taken by the second pipe to fill the tank is equal to 15 minutes.

Answer

15 minutes