Exercise 13B

Q15.

Answer :

(c) 16 hours

A tap can fill a cistern in 8 hours.

Part of cistern filled in one hour $= \frac{1}{8}$

A tap can empty the cistern in 16 hours.

Part of cistern emptied in one hour $= -\frac{1}{16}$ (negative sign shows that the cistern is being drained)

Q16.

Answer :

(d) 14 hours

A pump can fill a tank in 2 hours.

Part of the tank filled by the pump in one hour $= \frac{1}{2}$

Suppose the leak empties a full tank in x hours.

Part of the tank emptied by the leak in one hour $= -\frac{1}{x}$

Part of tank filled in one hour $= \frac{1}{2} - \frac{1}{x} = \frac{3}{7}$ (given)

$\frac{1}{x} = \frac{1}{2} - \frac{3}{7} = \frac{7-6}{14} = \frac{1}{14}$

$x = 14$ hours

Q17.

Answer :

(b) 7 hours 30 minutes

Part of the tank filled by the first pipe in one hour $= \frac{1}{10}$

Part of the tank filled by the second pipe in one hour $= \frac{1}{12}$

Part of the tank filled by the third pipe in one hour $= \frac{-1}{20}$

Part of the tank filled by three pipes in one hour $= \frac{1}{10} + \frac{1}{12} - \frac{1}{20} = \frac{2}{15}$

Total time taken to fill the tank $= \frac{15}{2}$ hrs $= 7$ hours 30 minutes

********** END **********