

34. If a cardinal can pray a soul out of purgatory, by himself, in an hour, a bishop in 3 hours, a priest in five, and a frier in 7; in what time can they pray out 3 souls, all praying together?

Let F be the amount of pray per foul to be completed.

$$\text{The rate of this cardinal} = \frac{F}{1} = F$$

$$\text{The rate of a bishop} = \frac{F}{3}$$

$$\text{The rate of a priest} = \frac{F}{5}$$

$$\text{The rate of a frier} = \frac{F}{7}$$

So if they all pray together their total rate of praying

$$= F + \frac{F}{3} + \frac{F}{5} + \frac{F}{7} = \frac{F(105+35+21+15)}{105} = \frac{176F}{105}$$

$$\text{If they have three souls to be prayed, then the time} = \frac{3F}{\frac{176F}{105}} = \frac{315}{176} \text{ hours.}$$

Notwithstanding, this question can be open to other interpretations – for instance, can we assume additive process in this “rate” problem as if we are filling the water tank with four different pipes? Not quite sure.