

Za efikasno računanje  $\varphi(441085995)$  nam je potrebna rastava broja 441085995 na proste faktore, koju nije teško naći “grubom silom”, s obzirom da su svi prosti faktori ovog broja mali:

$$441085995 = 3^2 \cdot 5 \cdot 7^3 \cdot 17 \cdot 41^2$$

Sada, na osnovu ove rastave, imamo:

$$\begin{aligned}\varphi(441085995) &= \varphi(3^2) \varphi(5) \varphi(7^3) \varphi(17) \varphi(41^2) = (3^2 - 3^1)(5 - 1)(7^3 - 7^2)(17 - 1)(41^2 - 41) = \\ &= 6 \cdot 4 \cdot 294 \cdot 16 \cdot 1640 = 185149440\end{aligned}$$

Do istog rezultata možemo doći i preko direktne formule koja izražava  $\varphi(n)$  preko prostih faktora broja  $n$ :

$$\begin{aligned}\varphi(441085995) &= 441085995 \cdot \left(1 - \frac{1}{3}\right) \left(1 - \frac{1}{5}\right) \left(1 - \frac{1}{7}\right) \left(1 - \frac{1}{17}\right) \left(1 - \frac{1}{41}\right) = \\ &= 441085995 \cdot \frac{2}{3} \cdot \frac{4}{5} \cdot \frac{6}{7} \cdot \frac{16}{17} \cdot \frac{40}{41} = 441085995 \cdot \frac{30720}{73185} = 6027 \cdot 30270 = 185149440\end{aligned}$$

Alternativno, prethodni račun smo mogli izvesti i ovako:

$$\begin{aligned}\varphi(441085995) &= 441085995 \cdot \left(1 - \frac{1}{3}\right) \left(1 - \frac{1}{5}\right) \left(1 - \frac{1}{7}\right) \left(1 - \frac{1}{17}\right) \left(1 - \frac{1}{41}\right) = \\ &= 441085995 \cdot \frac{2}{3} \cdot \frac{4}{5} \cdot \frac{6}{7} \cdot \frac{16}{17} \cdot \frac{40}{41} = 3^2 \cdot 5 \cdot 7^3 \cdot 17 \cdot 41^2 \cdot \frac{2}{3} \cdot \frac{4}{5} \cdot \frac{6}{7} \cdot \frac{16}{17} \cdot \frac{40}{41} = \\ &= 3 \cdot 7^2 \cdot 41 \cdot 2 \cdot 4 \cdot 6 \cdot 16 \cdot 40 = 185149440\end{aligned}$$