

Step-1

Consider the compound interest of 50%, compounded annually.

Then we get

$$\begin{aligned} P_n &= \left(1 + \frac{50}{100}\right)^n P_0 \\ &= (1.5)^n P_0 \end{aligned}$$

Consider the compound interest of 40%, compounded quarterly.

Then we get

$$\begin{aligned} P_n &= \left(1 + \frac{40}{100}\right)^{4n} P_0 \\ &= (1.1)^{4n} P_0 \\ &= (1.1^4)^n P_0 \\ &= (1.4641)^n P_0 \end{aligned}$$

Step-2

It is clear that $(1.5)^n P_0 > (1.4641)^n P_0$. Thus, it is preferable to choose the option of 50%, compounded annually, rather than 40% compounded quarterly.