

Given:

$$\text{Vega (V)} = 0.25$$

$$\text{Initial implied volatility } (\sigma_{\text{initial}}) = 20\% = 0.20$$

$$\text{New implied volatility } (\sigma_{\text{new}}) = 25\% = 0.25$$

Calculate the change in implied volatility ($\Delta\sigma$):

$$\Delta\sigma = \sigma_{\text{new}} - \sigma_{\text{initial}}$$

$$\Delta\sigma = 0.25 - 0.20$$

$$\Delta\sigma = 0.05$$

Calculate the change in the price of the put option ($\Delta\text{Option Price}$):

$$\Delta\text{Option Price} = V \times \Delta\sigma$$

$$\Delta\text{Option Price} = 0.25 \times 0.05$$

$$\Delta\text{Option Price} = 0.0125$$