

Find $\cos(A+C)$ given that $\cos A = 1/3$ with A in quadrant I, and $\sin C = 1/4$, with C in quadrant II.

Solution:

$$\cos(a + c) = \cos a \cos c - \sin a \sin c = \left(\frac{1}{3}\right)\left(-\frac{\sqrt{15}}{4}\right) - \left(\frac{1}{4}\right)\left(\frac{\sqrt{8}}{3}\right) = \left(\frac{1}{12}\right)\left(-\sqrt{15} - 2\sqrt{2}\right) = -0,56.$$

Answer: $\cos(a + c) = -0,56$.