

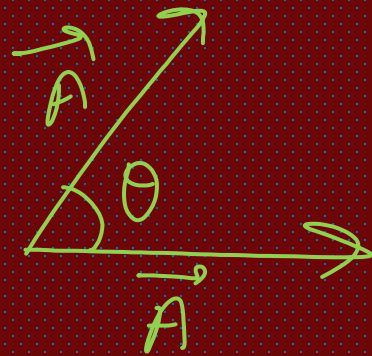
- What is the angle between two vector forces of equal magnitude such that their resultant is one – third of either of the original forces?

1. $\cos^{-1}\left(-\frac{17}{18}\right)$

2. $\cos^{-1}\left(-\frac{1}{3}\right)$

3. 45°

4. 120°



$$|\vec{R}| = \frac{|\vec{A}|}{3}$$

$$|\vec{R}| = \sqrt{A^2 + B^2 + 2AB\cos\theta}$$

$$\frac{A}{3} = \sqrt{A^2 + A^2 + 2A^2\cos\theta}$$

$$\frac{A^2}{9} = 2A^2(1 + \cos\theta)$$

$$1 + \cos\theta = \frac{1}{18}$$

$$\cos\theta = \frac{1}{18} - 1 = -\frac{17}{18}$$



$$\theta = \cos^{-1}\left(-\frac{17}{18}\right)$$