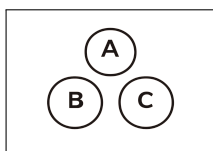


37 Formulas and Identities

Sum to Product

C



$$\alpha = 105^\circ$$

$$\beta = 15^\circ$$

$$\cos(\alpha) + \cos(\beta) = 2 \cos((\alpha + \beta)/2) \times \cos((\alpha - \beta)/2)$$

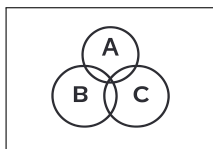
$$\cos(105^\circ) + \cos(15^\circ) = 2 \cos((105^\circ + 15^\circ)/2) \times \cos((105^\circ - 15^\circ)/2)$$

$$\cos(105^\circ) + \cos(15^\circ) = 2 \cos(60^\circ) \times \cos(45^\circ)$$

$$\cos(105^\circ) + \cos(15^\circ) = 2(1/2) \times (\sqrt{2}/2)$$

$$\cos(105^\circ) + \cos(15^\circ) = \sqrt{2}/2$$

$$\cos(105^\circ) + \cos(15^\circ) = 1/\sqrt{2}$$

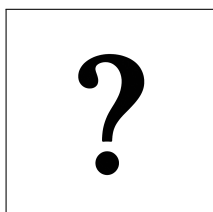


$$\cos(\alpha) + \cos(\beta) = 2 \cos((\alpha + \beta)/2) \times \cos((\alpha - \beta)/2)$$

$$\alpha = 165^\circ$$

$$\beta = 75^\circ$$

$$\cos(\alpha) + \cos(\beta) = ?$$



37 Formulas and Identities Sum to Product

C



$$\alpha = 165^\circ$$

$$\beta = 75^\circ$$

$$\cos(\alpha) + \cos(\beta) = 2 \cos((\alpha + \beta)/2) \times \cos((\alpha - \beta)/2)$$

$$\cos(\alpha) + \cos(\beta) = 2 \cos(165^\circ + 75^\circ/2) \times \cos(165^\circ - 75^\circ/2)$$

$$\cos(\alpha) + \cos(\beta) = 2 \cos(120^\circ) \times \cos(45^\circ)$$

$$\cos(\alpha) + \cos(\beta) = 2(-1/2) \times (\sqrt{2}/2)$$

$$\cos(\alpha) + \cos(\beta) = -\sqrt{2}/2$$

$$\cos(\alpha) + \cos(\beta) = -1/\sqrt{2}$$