



Trigonometry Identities - Sum to Product to Identity (Degrees)



1 Complete the sum to product identity for this expression

$$\sin(60^\circ) + \sin(150^\circ)$$

A $= 2\sin\left(\frac{60^\circ + 150^\circ}{2}\right)\cos\left(\frac{60^\circ - 150^\circ}{2}\right)$

B $= \sin\left(\frac{2}{60^\circ + 150^\circ}\right)\sin\left(\frac{60^\circ - 150^\circ}{2}\right)$

2 Complete the sum to product identity for this expression

$$\sin(315^\circ) - \sin(210^\circ)$$

A $= 2\sin\left(\frac{315^\circ - 210^\circ}{2}\right)\cos\left(\frac{315^\circ + 210^\circ}{2}\right)$

B $= -2\sin\left(\frac{2}{315^\circ}\right)\cos\left(\frac{315^\circ - 210^\circ}{2}\right)$

3 Complete the sum to product identity for this expression

$$\sin(150^\circ) - \sin(240^\circ)$$

A $= 2\sin\left(\frac{150^\circ - 240^\circ}{2}\right)\cos\left(\frac{150^\circ + 240^\circ}{2}\right)$

B $= 2\cos\left(\frac{150^\circ + 240^\circ}{2}\right) - \sin\left(\frac{150^\circ + 240^\circ}{2}\right)$

4 Complete the sum to product identity for this expression

$$\sin(315^\circ) + \sin(150^\circ)$$

A $= 2\sin\left(\frac{315^\circ + 150^\circ}{2}\right)\cos\left(\frac{315^\circ - 150^\circ}{2}\right)$

B $= 2\cos\left(\frac{315^\circ - 150^\circ}{2}\right) - \sin\left(\frac{315^\circ + 150^\circ}{2}\right)$

5 Complete the sum to product identity for this expression

$$\sin(150^\circ) + \sin(240^\circ)$$

A $= \sin\left(\frac{2}{150^\circ + 240^\circ}\right)\sin\left(\frac{150^\circ - 240^\circ}{2}\right)$

B $= 2\sin\left(\frac{150^\circ + 240^\circ}{2}\right)\cos\left(\frac{150^\circ - 240^\circ}{2}\right)$

6 Complete the sum to product identity for this expression

$$\cos(150^\circ) + \cos(240^\circ)$$

A $= 2\cos\left(\frac{150^\circ + 240^\circ}{2}\right)\cos\left(\frac{150^\circ - 240^\circ}{2}\right)$

B $= 2\cos\left(\frac{2}{150^\circ + 240^\circ}\right)\cos\left(\frac{150^\circ - 240^\circ}{2}\right)$

7 Complete the sum to product identity for this expression

$$\cos(150^\circ) - \cos(300^\circ)$$

A $= 2\sin\left(\frac{2}{150^\circ + 300^\circ}\right)\cos\left(\frac{150^\circ - 300^\circ}{2}\right)$

B $= -2\sin\left(\frac{150^\circ + 300^\circ}{2}\right)\sin\left(\frac{150^\circ - 300^\circ}{2}\right)$

8 Complete the sum to product identity for this expression

$$\sin(120^\circ) + \sin(45^\circ)$$

A $= 2\sin\left(\frac{120^\circ + 45^\circ}{2}\right)\cos\left(\frac{120^\circ - 45^\circ}{2}\right)$

B $= 2\cos\left(\frac{120^\circ - 45^\circ}{2}\right) - \sin\left(\frac{120^\circ + 45^\circ}{2}\right)$