

## Product-to-Sum Identity

Write each product as a sum or difference.

1)  $\cos 9^\circ \sin 31^\circ$

2)  $\sin \frac{23\pi}{45} \sin \frac{14\pi}{45}$

3)  $2 \sin 15x \cos$

$23^\circ$

5)  $\sin 41x \sin 16$

$n(-2x)$

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## Product-to-Sum Identity

Write each product as a sum or difference.

1)  $\cos 9^\circ \sin 31^\circ$

2)  $\sin \frac{23\pi}{45} \sin \frac{14\pi}{45}$

$\frac{\sin 40^\circ + \sin 23^\circ}{2} - \frac{\cos \frac{\pi}{45} - \cos \frac{37\pi}{45}}{2}$

3)  $2 \sin 15x \cos 23^\circ$

$\sin 19x +$

$\frac{+ \cos 43^\circ}{2}$

5)  $\sin 41x \sin 16$

$\sin(-2x)$

$\frac{\cos 25x - \cos 57x}{2}$

$\frac{\sin 5x - \sin 9x}{2}$

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