

1. Find the exact value of each:

$$\sin \frac{7\pi}{12}$$

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$$\cos \frac{19\pi}{12}$$

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$$\tan \frac{11\pi}{12}$$

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2. Solve the equation for  $0 \leq x < 360^\circ$ .

$$\sin\left(x + \frac{\pi}{4}\right) + \sin\left(x - \frac{\pi}{4}\right) = -1$$

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3. Given the following information:  $\sin x = \frac{-5}{13}$   $\cos x < 0$  and  $\sec y = \frac{-\sqrt{10}}{3}$   $\sin y < 0$

Find the exact value of  $\sin(x - y)$

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4. Write  $\sin 6x \cos 6x$  in terms of a single trig function.

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5. Solve the equation for  $0^\circ \leq x < 360^\circ$

$$\sin 4x = -\sqrt{3} \cos 2x$$

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6. Find the exact value of  $\cos 2x$  given that  $\cos x = \frac{-1}{15}$  and  $\frac{\pi}{2} < x < \pi$

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7. If  $\tan y = \frac{3}{5}$  find  $\tan 3y$

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8. Find the EXACT value of  $\tan(a-b)$  given that:  $\sin a = \frac{4}{5}$   $\frac{\pi}{2} < a < \pi$   $\cos b = -\frac{3}{5}$   $\pi < b < \frac{3\pi}{2}$

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9. Prove that the given is an identity.  $\frac{1 + \sin A - \cos 2A}{\cos A + \sin 2A} = \tan A$

Answers on back.

<p>1.</p> $\frac{\sqrt{2} + \sqrt{6}}{4}$ $\frac{-\sqrt{2} + \sqrt{6}}{4}$ $-2 + \sqrt{3}$	<p>2. <math>X = 225^\circ, 315^\circ</math></p>	<p>3. <math>\frac{3\sqrt{10}}{130}</math></p>
<p>4. <math>\frac{1}{2} \sin 12x</math></p>	<p>5. <math>X = 45^\circ, 135^\circ, 225^\circ, 315^\circ, 120^\circ, 150^\circ, 300^\circ, 330^\circ</math></p>	<p>6. <math>\frac{-223}{225}</math></p>
<p>7. -19.8</p>	<p>8. <math>\frac{24}{7}</math></p>	<p>9.</p> $\frac{1 + \sin A - 1 + 2 \sin^2 A}{\cos A + 2 \sin A \cos A}$ $\frac{\sin A(1 + 2 \sin A)}{\cos A(1 + 2 \sin A)}$ $\frac{\sin A}{\cos A}$ $\tan A$