

# Advanced Math

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2) $\sin(t) = \frac{5}{13}$	4) $\sin(t) = -\frac{3}{5}$	6) $(\frac{1}{2}, \frac{\sqrt{3}}{2})$
$\cos(t) = \frac{12}{13}$	$\cos(t) = -\frac{4}{5}$	8) $(-\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}})$
$\tan(t) = \frac{5}{12}$	$\tan(t) = \frac{3}{4}$	10) $(\frac{\sqrt{3}}{2}, -\frac{1}{2})$
$\csc(t) = \frac{13}{5}$	$\csc(t) = -\frac{5}{3}$	12) $(-1, 0)$
$\sec(t) = \frac{13}{12}$	$\sec(t) = -\frac{5}{4}$	
$\cot(t) = \frac{12}{5}$	$\cot(t) = \frac{4}{3}$	

14) $\sin(-\frac{\pi}{4}) = -\frac{1}{\sqrt{2}}$	16) $\sin(\frac{\pi}{3}) = \frac{\sqrt{3}}{2}$	18) $\sin(-\frac{5\pi}{6}) = -\frac{1}{2}$
$\cos(-\frac{\pi}{4}) = \frac{1}{\sqrt{2}}$	$\cos(\frac{\pi}{3}) = \frac{1}{2}$	$\cos(-\frac{5\pi}{6}) = -\frac{\sqrt{3}}{2}$
$\tan(-\frac{\pi}{4}) = -1$	$\tan(\frac{\pi}{3}) = \sqrt{3}$	$\tan(-\frac{5\pi}{6}) = \frac{1}{\sqrt{3}}$

20) $\sin(\frac{2\pi}{3}) = \frac{\sqrt{3}}{2}$	22) $\sin(\frac{7\pi}{4}) = -\frac{1}{\sqrt{2}}$	24) $\sin(-2\pi) = 0$
$\cos(\frac{2\pi}{3}) = -\frac{1}{2}$	$\cos(\frac{7\pi}{4}) = \frac{1}{\sqrt{2}}$	$\cos(-2\pi) = 1$
$\tan(\frac{2\pi}{3}) = -\sqrt{3}$	$\tan(\frac{7\pi}{4}) = -1$	$\tan(-2\pi) = 0$

26) $\sin(-\frac{2\pi}{3}) = -\frac{\sqrt{3}}{2}$	28) $\sin(\frac{3\pi}{2}) = -1$	30) $\sin(-\frac{11\pi}{6}) = \frac{1}{2}$
$\cos(-\frac{2\pi}{3}) = -\frac{1}{2}$	$\cos(\frac{3\pi}{2}) = 0$	$\cos(-\frac{11\pi}{6}) = \frac{\sqrt{3}}{2}$
$\tan(-\frac{2\pi}{3}) = \sqrt{3}$	$\tan(\frac{3\pi}{2}) = \emptyset$	$\tan(-\frac{11\pi}{6}) = \frac{1}{\sqrt{3}}$
$\csc(-\frac{2\pi}{3}) = -\frac{2}{\sqrt{3}}$	$\csc(\frac{3\pi}{2}) = -1$	$\csc(-\frac{11\pi}{6}) = 2$
$\sec(-\frac{2\pi}{3}) = -2$	$\sec(\frac{3\pi}{2}) = \emptyset$	$\sec(-\frac{11\pi}{6}) = \frac{2}{\sqrt{3}}$
$\cot(-\frac{2\pi}{3}) = \frac{1}{\sqrt{3}}$	$\cot(\frac{3\pi}{2}) = 0$	$\cot(-\frac{11\pi}{6}) = \sqrt{3}$

32) $\cos(3\pi) = -1$	40) $\sin(t) = -\frac{2}{5}$	44) $\cos(\pi-t) = -\frac{4}{5}$	50) 1.3410
34) $\sin(\frac{9\pi}{4}) = \frac{1}{\sqrt{2}}$	$\csc(t) = -\frac{5}{2}$	$\cos(t+\pi) = -\frac{4}{5}$	52) -4.4014
36) $\sin(-\frac{13\pi}{6}) = -\frac{1}{2}$	42) $\cos(-t) = -\frac{3}{4}$	46) 0	54) -0.7833
38) $\cos(-\frac{8\pi}{3}) = -\frac{1}{2}$	$\sec(-t) = -\frac{4}{3}$	48) 0.6421	

63)  $y(t) = \frac{1}{4} \cos(6t)$

a)  $y(0) = \frac{1}{4} \cos(6 \cdot 0) = \frac{1}{4}$

b)  $y(\frac{1}{4}) = \frac{1}{4} \cos(6 \cdot \frac{1}{4}) = 0.0177$

c)  $y(\frac{1}{2}) = \frac{1}{4} \cos(6 \cdot \frac{1}{2}) = -0.2475$

65)  $I = 5e^{-2t} \sin t$

$I = 5e^{-2(0.7)} \sin(0.7)$

$I = 0.794 \text{ amp5}$