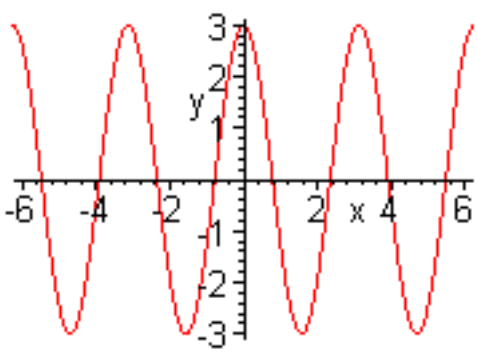
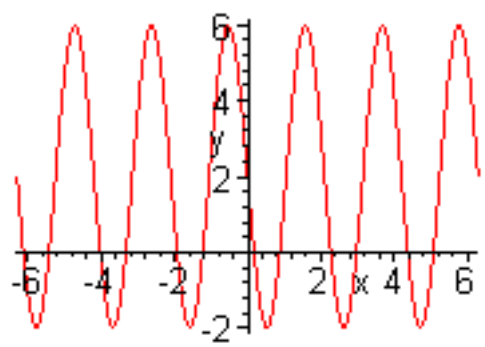
1. Completed table.

radian (x)	degree (θ)	$\sin(x)$	$\cos(x)$
$\frac{3\pi}{4}$	$135°$	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$
$\frac{11\pi}{6}$, $\frac{7\pi}{6}$	$330°$, $210°$	$-\frac{1}{2}$	$\pm\frac{\sqrt{3}}{2}$
$\frac{11\pi}{6}$	$330°$	$-\frac{1}{2}$	$\frac{\sqrt{3}}{2}$
$\frac{5\pi}{6}$, $\frac{7\pi}{6}$	$150°$, $210°$	$\pm\frac{1}{2}$	$-\frac{\sqrt{3}}{2}$
$\frac{10\pi}{3}$	$600°$	$-\frac{\sqrt{3}}{2}$	$-\frac{1}{2}$
$\frac{\pi}{4}$, $\frac{3\pi}{4}$	$45°$, $135°$	$\frac{\sqrt{2}}{2}$	$\pm\frac{\sqrt{2}}{2}$
$\frac{7\pi}{6}$	$210°$	$-\frac{1}{2}$	$-\frac{\sqrt{3}}{2}$
π	$180°$	0	-1
$-\frac{5\pi}{4}$	$-225°$	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$
0, 2π	$0°$, $360°$	0	1
$\frac{3\pi}{2}$	$270°$	-1	0
$\frac{2\pi}{3}$, $\frac{4\pi}{3}$	$120°$, $240°$	$\pm\frac{\sqrt{3}}{2}$	$-\frac{1}{2}$

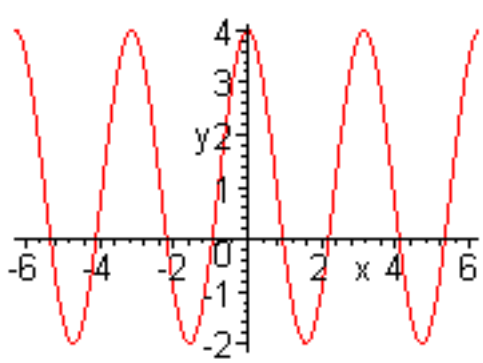
2. $y = 3\cos(2x)$, Period $= \pi$.



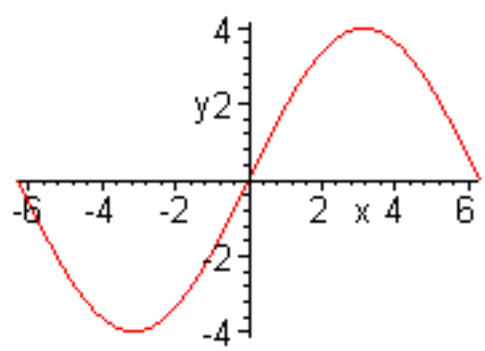
3. $y = 2 - 4\sin(3x)$, Period $= \frac{2\pi}{3}$.



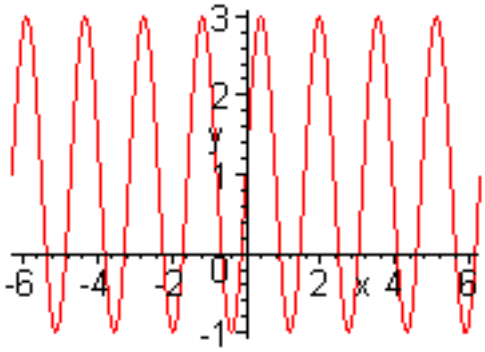
4. $y = 1 + 3\cos(2x)$, Period $= \pi$.



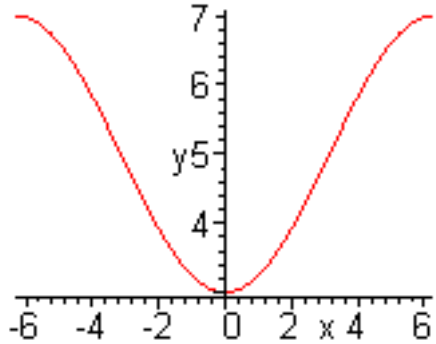
5. $y = 4\sin(x/2)$, Period $= 4\pi$.



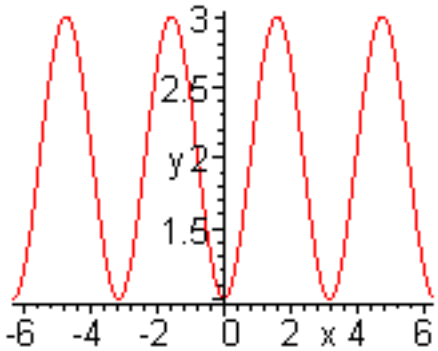
6. $y = 2\sin(4x) + 1$, Period $= \frac{\pi}{2}$.



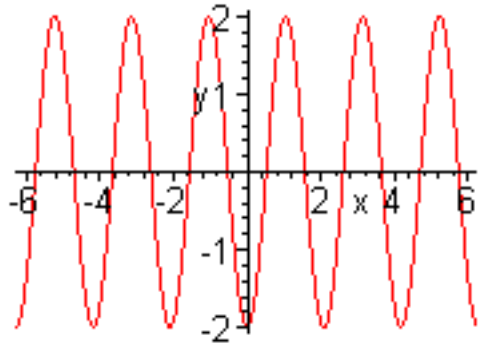
7. $y = 5 - 2\cos(x/2)$, Period $= 4\pi$.



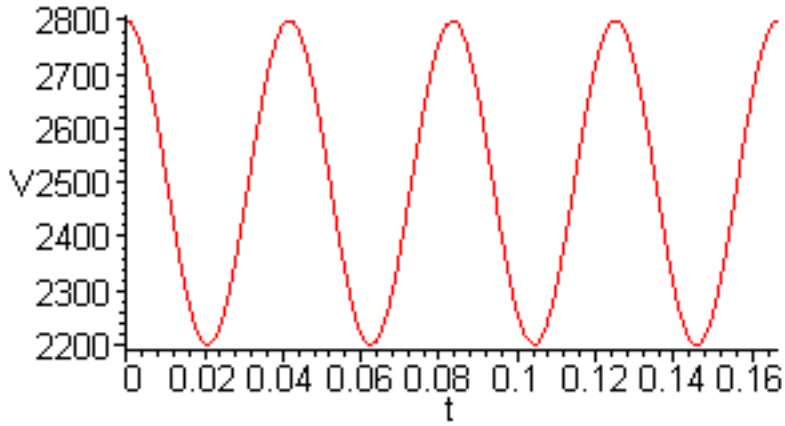
8. $y = 2 - \cos(2(x - \pi))$, Period $= \pi$.



9. $y = 2\sin\left(3\left(x + \frac{\pi}{2}\right)\right)$, Period $= \frac{2\pi}{3}$.

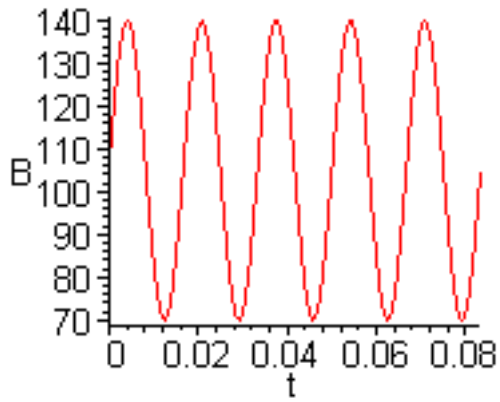


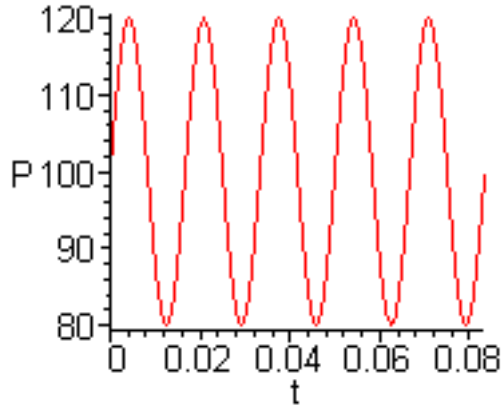
10. $A = 2500$, $B = 300$, and $\omega = 48\pi \simeq 150.8$, so $V(t) = 2500 + 300\cos(48\pi t)$. Max $= 2800$ ml at $t = 0$ and every $\frac{1}{24}$ min or 2.5 sec interval. Min $= 2200$ ml at $t = \frac{1}{48}$ min or 1.25 sec and every 2.5 sec interval.



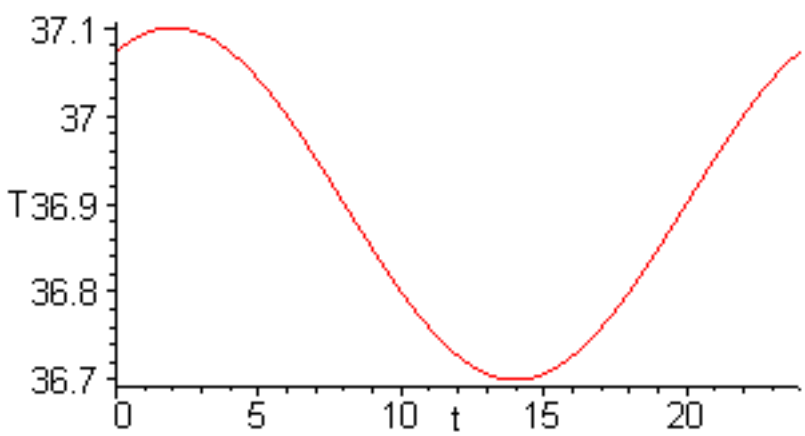
11. a. $a = 105$, $b = 35$, and $\omega = 120\pi \simeq 377.0$, so $B(t) = 105 + 35\sin(120\pi t)$. Max = 140 ml at $t = \frac{1}{240}$ min or 0.25 sec and every 1 sec interval. Min = 70 ml at $t = 0.75$ sec and every 1 sec interval.

b. $c = 100$, $d = 20$, and $\omega = 120\pi \simeq 377.0$, so $P(t) = 100 + 20\sin(120\pi t)$. Max = 120 mm Hg at $t = \frac{1}{240}$ min or 0.25 sec and every 1 sec interval. Min = 80 mm Hg at $t = 0.75$ sec and every 1 sec interval.





12. $A = 36.9$, $B = 0.2$, $\omega = \frac{\pi}{12} \simeq 0.262$, and $\phi = 2$, so $T(t) = 36.9 + 0.2\cos\left(\frac{\pi}{12}(t-2)\right)$. Max = 37.1°C at $t = 2$, and min = 36.7°C at $t = 14$ or 2 pm.



13. a. $A = 89.5$, $B = 14.5$, $\omega = \frac{\pi}{12} \simeq 0.262$, and $\phi = 9$, so $T(t) = 89.5 + 14.5 \sin\left(\frac{\pi}{12}(t-9)\right)$. Max = 104°F at $t = 15$ or 3 pm, and min = 75°F at $t = 3$ or 3 am.

b. The temperature remains above 88°F for approximately 12.79 hours or 12 hr 48 min a day.