$$f(t) = \sum_{n=0}^{\infty} \frac{f^{(n)}(0)}{n!} \cdot t^n$$

$$f(t) = 12\cos(40t)$$

n	$f^{(n)}(t)$	$f^{n}(0)$
0	$12\cos(40t)$	12
1	$-12 \cdot 40\sin(40t)$	0
2	$-12 \cdot 40^2\cos(40t)$	$-12 \cdot 40^2$
3	$12 \cdot 40^3\sin(40t)$	0
4	$12 \cdot 40^4\cos(40t)$	$12 \cdot 40^4$
5	$-12 \cdot 40^5\sin(40t)$	0
6	$-12 \cdot 40^6\cos(40t)$	$-12 \cdot 40^6$

$f^{0}(t) = 12\cos(40t)$

$f^{0}(0) = 12$

$f^{1}(t) = -12 \cdot 40\sin(40t)$

$f^{1}(0) = 0$

$f^{2}(t) = -12 \cdot 40^2\cos(40t)$

$f^{2}(0) = -12 \cdot 40^2$

$f^{3}(t) = 12 \cdot 40^3\sin(40t)$

$f^{3}(0) = 0$

.....

From the above table:

For even n:

$$f^{n}(0) = 12 - 12 \cdot 40^2 + 12 \cdot 40^4 - 12 \cdot 40^6 \ldots\ldots$$

$$a_n = \frac{f^{n}(0)}{n!} = 12\left(\frac{1}{0!} - \frac{40^2}{2!} + \frac{40^4}{4!} - \frac{40^6}{6!} \ldots\ldots\right)$$

$$\boxed{a_n = \frac{12}{n!} \cdot (40^n)(-1)^{n/2} \quad (\text{for even } n)}$$

For odd n:

$f^{n}(0) = 0$

$a_n = 0$

$\therefore$ One formula for a_n:

$$\boxed{a_n = \frac{12 \cdot (-1)^n \cdot 40^{2n}}{n!}}$$