(d) $f(t) = 2\cos t + \sin 2t$ on $[0, \frac{\pi}{2}]$

Step 1 $a = 0$, $b = \frac{\pi}{2}$ (68)

Step 2 $f'(t) = 2(-\sin t) + \cos(2t) \cdot 2$

$= 2\{-\sin t + \cos(2t)\}$

$= 2\{-\sin t + (1 - 2\sin^2 t)\}$

$= -2(2\sin t - 1)(\sin t + 1)$

$c = \frac{\pi}{6}$ ($\leftarrow \sin c = \frac{1}{2}$)

Step 3.

$f(0) = 2\cos 0 + \sin 2\cdot 0 = 2$

$f(\frac{\pi}{2}) = 2\cdot\cos\frac{\pi}{2} + \sin(2\frac{\pi}{2}) = \cancel{\times}\ 0$ ← abs. min

$f(\frac{\pi}{6}) = 2\cos\frac{\pi}{6} + \sin(2\cdot\frac{\pi}{6})$

$= \sqrt{3} + \frac{\sqrt{3}}{2} = \frac{3\sqrt{3}}{2}$ ← abs. max