If $e_c = 24 \sin 10^6 \pi t$ and $E_m = 12 \sin 500 \pi t$ are carrier and modulating signal then the modulation index is

(a) 50%.
(b) 60%.
(c) 40%.
(d) 46%.

(a) $m_a = \frac{E_m}{E_c} = \frac{12}{24} \times 100 = 50\%$