Additional Integration 1

$$\int_0^{\frac{\pi}{2}} \sin^3 x \, dx$$

$\int_0^{\frac{\pi}{2}} \sin^3 x \, dx$ (Odd ☺ Rewrite with singlton ☺)

$\int_0^{\frac{\pi}{2}} \sin x \cdot \sin^2 x \, dx$ (Rewrite non-singleton terms in other trig function)

$-\int_0^{\frac{\pi}{2}} \sin x (1 - \cos^2 x) \, dx$ (Use u-Substitution)

$u = \cos x$

$du = -\sin x \, dx$

$u(\frac{\pi}{2}) = \cos\frac{\pi}{2} = 0$

$u(0) = \cos(0) = 1$

$-\int_1^0 1 - u^2 \, du$

$\int_0^1 1 - u^2 \, du$

$u - \frac{u^3}{3}\Big|_0^1 = (1 - \frac{1}{3}) - (0 - 0) = \boxed{\frac{2}{3}}$

Additional Integration 2

$$\int \cos^2 x \, dx$$

$\int \cos^2 x \, dx$ (Even so use $\cos^2 x = \frac{1}{2}[1 + \cos(2x)]$, $\sin^2 x = \frac{1}{2}[1 - \cos(2x)]$)

$\int \frac{1}{2}[1 + \cos(2x)] \, dx$

$\frac{1}{2}\int [1 + \cos(2x)] \, dx$

$\frac{1}{2}[x + \frac{\sin(2x)}{2}] + C$

$\frac{1}{2}x + \frac{1}{4}\sin(2x) + C$