

## Higher – Integration 2.

1. Find  $\int 6x^2 - x + \cos x \, dx$  (4)

2. Evaluate  $\int_{-3}^0 (2x+3)^2 \, dx$  (4)

3. A curve, for which  $\frac{dy}{dx} = 6x^2 - 2x$ , passes through the point  $(-1, 2)$   
Express  $y$  in terms of  $x$ . (3)

4. Find  $\int \sqrt{1+3x} \, dx$  and hence find the **exact** value of  $\int_0^1 \sqrt{1+3x} \, dx$  (5)

5. Differentiate  $\sin^3 x$  with respect to  $x$ .  
Hence find  $\int \sin^2 x \cos x \, dx$  (4)

**TOTAL (20)**