

Name

MUN Number

[16] 1. Evaluate each of the following integrals.

(a) $\int x^2 \cos(3x) dx$

(b) $\int x^2 \cos(x^3) dx$

(c) $\int \left(\frac{\cos(x) + 3}{\cos(x)} \right)^2 dx$

- [12] 2. Evaluate **TWO** of the following integrals using the indicated technique. (Additional techniques may also be required. If you evaluate all three, only your best two will count towards your mark.)

(a) $\int \frac{1}{\sqrt{15 - 4x - 4x^2}} dx$, complete the square

(b) $\int e^{2x} \sin(x) dx$, integration by parts

(c) $\int x^3 \sqrt{x^2 + 1} dx$, u -substitution

- [12] 3. Evaluate **TWO** of the following integrals using any suitable technique or combination of techniques. (If you evaluate all three, only your best two will count towards your mark.)

(a) $\int \frac{\sec(x) \tan(x)}{9 \sec^2(x) + 25} dx$

(b) $\int \frac{2x^3 + x^2 - 6x}{2x + 1} dx$

(c) $\int x \operatorname{arcsec}(x) dx$