MATH 6 – QUIZ 2
10 FEBRUARY 2012

Name: SOLUTIONS.

NO CALCULATORS

1. Compute the following integral. You need not fully simplify your answer. However, 1 point extra credit will be awarded if you can write your (correct) answer as a simplified fraction with no exponents.

$$\int_1^8 \frac{1}{\sqrt[3]{x}}\,dx$$

$$\int_1^8 \frac{1}{\sqrt[3]{x}}\,dx = \int_1^8 x^{-1/3}\,dx = \frac{3}{2}x^{2/3}\Big|_1^8 = \frac{3}{2}8^{2/3} - \frac{3}{2}$$

$$= \frac{3}{2}\cdot 4 - \frac{3}{2} = \boxed{\frac{9}{2}}$$

2. Compute the following integral.

$$\int x^3(x^4+2)^{99}\,dx$$

Let $u = x^4+2$

Then $du = 4x^3\,dx$, so $\frac{1}{4}du = x^3\,dx$

Substitute: $\int \frac{1}{4}u^{99}\,du = \frac{1}{4}\frac{u^{100}}{100} + C$

$$= \boxed{\frac{(x^4+2)^{100}}{400} + C}$$