

MAT 137 (Calculus II) Prof. Swift

Quiz 1, Calculus 1 review

1 pt. for each + 1 free point.

Name: key

Finish each of the sentences. (The verb is “=”.) Do your own work. You may not use calculators or electronic devices. The quiz is worth 5 class points, and each problem has equal weight. You may leave the class after you turn in your quiz.

1. $f(x) = x^2 \sin(2x)$. $f'(x) = 2x \sin(2x) + x^2 \cos(2x) \cdot 2$

2. $\int x^2 + \sin(x) dx = \frac{x^3}{3} - \cos(x) + C$

3. $\int \frac{2x}{x^2+1} dx = \int \frac{1}{u} du = \ln|u| + C = \ln|x^2+1| + C$
 $= \ln(x^2+1) + C$
 $u = x^2+1, du = 2x$

4. $\int \frac{x+1}{\sqrt{x}} dx = \int x^{-\frac{1}{2}}(x+1) dx = \int x^{\frac{1}{2}} + x^{-\frac{1}{2}} dx = x^{\frac{3}{2}} \cdot \frac{2}{3} + x^{\frac{1}{2}} \cdot 2 + C$
 $= \frac{2}{3} x^{\frac{3}{2}} + 2x^{\frac{1}{2}} + C$
 OK too \rightarrow

Note:
 “dx” is not optional

$\int x^2 dx \neq \int x^2$

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