

You have 20 minutes to take this quiz. Each problem will be graded for clarity of work as well as correctness, so show all work **clearly and in order**. Circle or otherwise indicate your final answers. Please note that there are problems on both the front and the back of this page.

NO CALCULATORS ON THIS QUIZ.

*All of the problems on this quiz are taken directly from the homework. However, I'm not saying which problems are from which section since that would give away what method to apply. Solve each of the following integrals:*

1. (3 points)  $\int \frac{\sin^{-1} x}{\sqrt{1-x^2}} dx$

2. (3 points)  $\int \frac{1}{x^2 - 4x + 13} dx$

3. (3 points)  $\int \frac{1 + \tanh x}{\cosh^2 x} dx$

(Hint:  $\frac{d}{dx}(\tanh x) = \text{sech}^2 x$ .)

*Turn over for more...*

4. (5 points)  $\int_0^1 (e^x + 2x)^2 dx$

5. (5 points)  $\int (\ln x)^2 dx$

**BONUS QUESTION** (1 point)

If  $v = v(x)$  is a function of  $x$ , write  $dv$  in terms of  $x$ .