PRINT Your Name:_____

Quiz 5 — September 18, 2009 – 8:00 section

Remove everything from your desk except this page and a pencil or pen.

Circle your answer. **Show your work.**
The quiz is worth 5 points.

Find $\int \frac{x}{\sqrt{1-4x^4}} dx$. **Check your answer.**

Answer: We plan to maneuver the given integral into the form

$$\int \frac{du}{\sqrt{1-u^2}} = \arcsin u + C.$$

Let $u = 2x^2$. It follows that $du = 4xdx$. The original problem is equal to

$$\frac{1}{4}\int \frac{du}{\sqrt{1-u^2}} = \frac{1}{4}\arcsin u + C = \boxed{\frac{1}{4}\arcsin(2x^2) + C.}$$

Check: The derivative of the proposed answer is

$$\frac{1}{4}4x\frac{1}{\sqrt{1-(2x^2)^2}} \checkmark.$$