

## Mathematics Quiz

Name \_\_\_\_\_

Date \_\_\_\_\_

Professor: Me

1. When is it true that  $\sqrt{x^2} = \sqrt[4]{x^4}$ ?

2. Is it true that  $\frac{3}{4} + \frac{1}{5} = \frac{4}{9}$ ?

3. Prove that  $\left(\sum_{k=1}^n k\right)^2 = \sum_{k=1}^n k^3$ .

4. Which of the following looks better?

(a) This one,  $\int_{-1}^1 |x^3 - x| dx = \frac{1}{2}$ ,

(b) this one,  $\int_{-1}^1 |x^3 - x| dx = \frac{1}{2}$ , or

(c) this one,  $\int_{-1}^1 |x^3 - x| dx = \frac{1}{2}$ , or

(d) this one

$$\int_{-1}^1 |x^3 - x| dx = \frac{1}{2} \quad ?$$

Explain your choice.