

1. [10 points] Indicate if each of the following statements are true or false by circling the correct answer. **You do not need to justify your answers.**

a. [2 points] The integral  $\int_{-2}^2 \frac{1}{x^2} dx = -1$

True                  False

b. [2 points] For any positive number  $p$ , the integral  $\int_0^\infty \frac{1}{x^p} dx$  diverges.

True                  False

- c. [2 points] If the median grade of an exam is larger than the average grade then more than half of the students got a grade greater or equal to the average.

True                  False

d. [2 points] Let  $f(x)$  be a positive and continuous function. If  $\lim_{x \rightarrow \infty} f(x) = \infty$ , then  $\int_0^\infty \frac{1}{f(x)} dx$  converges.

True                  False

- e. [2 points] The line  $y = 2x + 1$  has parametric equations  $x = -1 + 2t$ ,  $y = -1 + 4t$ .

True                  False