

MATH 2320 Test 2

Name: _____

1. $\int \sin^{-2}(3x) \cos(3x) \, dx$

2. $\int \frac{1}{(x^2-9)^{3/2}} dx$

3. $\int \frac{3x^2-1}{x^3-x} dx$

4. $\int_1^\infty \frac{1}{x^5} dx$

5. For the following Series state whether the series converges or diverges, the test you used, the criteria satisfied and show your work.

(a) $\sum_{k=1}^{\infty} \frac{1}{2k} - \frac{1}{2k+2}$

(b) $\sum_{k=1}^{\infty} \frac{3^k}{2^k}$

$$(c) \sum_{k=1}^{\infty} e^{-k}$$

$$(d) \sum_{k=1}^{\infty} \frac{1}{k^{1/2}}$$

$$(e) \sum_{k=1}^{\infty} \frac{k}{2^k}$$

$$(f) \sum_{k=1}^{\infty} \frac{1}{k!}$$