Math 2320 - Test 3

Name:_____

Do not use a calculator and show all work.

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

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

3. For the following series determine whether or not the series converges. If it converges determine its sum. Remember we need to see 1. the series test (or series type), 2. the criteria used and 3. the conclusion.

(a) $\sum_{k=4}^{\infty}(\frac{1}{k}-\frac{1}{k+1})$

(b) $\sum_{k=4}^{\infty}2^k$

(c) $\sum_{k=4}^{\infty}\frac{3}{2^k}$

4. For the following series determine whether or not the series converges. Remember we need to see 1. the series test (or series type), 2. the criteria used and 3. the conclusion.

   (a) $\displaystyle\sum_{k=4}^{\infty} \frac{1}{k^2}$

   (b) $\displaystyle\sum_{k=4}^{\infty} \frac{1}{k}$

(c) $\displaystyle\sum_{k=4}^{\infty} \frac{1}{k^2+1}$. Use the integral test.

(d) $\displaystyle\sum_{k=4}^{\infty} \frac{2^k}{k!}$

(e) $\sum_{k=4}^{\infty}(1-\frac{2}{k})^{k^2}$

(f) $\sum_{k=4}^{\infty}(1-\frac{2}{k})^{k}$