Make-up Quiz 5

⚠ This is a preview of the published version of the quiz

Started: Jan 5 at 2:05pm

Quiz Instructions

Question 1	1 pts

True or False: If $f(x) \leq g(x)$ and $\int_0^\infty g(x)\,dx$ diverges, then $\int_0^\infty f(x)\,dx$ also diverges.

Question 2	1 pts

For what values of b is $I = \int_0^\infty e^{bx} \cos(x)\,dx$ convergent? Evaluate the integral for those values of b.

Hint: Use the following format to answer: b\in (a,c); I=f(b)

Question 3

1 pts

Suppose you want to express $\dfrac{x^2 - 4}{x^2(x^2 + 4)}$ in the form $\dfrac{f_1(x)}{g_1(x)} + \cdots + \dfrac{f_n(x)}{g_n(x)}$. What is n equal to? Give $g_1(x), \ldots, g_n(x)$.

Hint: Write up the answer in the following format: n=5; g_1(x)=x^3; ...g_n(x)=sin(x)

Question 4

1 pts

If the expression $\sqrt{a^2 - x^2}$ occurs in an integral, what substitution might you try?

Hint: Answer using the following format: $u = f(x)$

Question 5

1 pts

Is it possible to find a number n such that $\int_0^\infty x^n \, \mathrm{d}x$ is convergent? If yes, give the value or the interval of n.

Not saved

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