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Homework 27

The **due date** for this homework is **Tue 7 May 2013 12:00 AM EDT**.

Question 1

Does the integral converge or diverge?

$$\int_{x=0}^1 \frac{dx}{\sqrt{x} - 10}$$

- ☐ It converges
- ☐ It diverges

Question 2

Does the integral converge or diverge?

$$\int_{x=0}^1 \frac{\cos^2 x}{\sqrt{x}} dx$$

- ☐ It diverges
- ☐ It converges

Question 3

Does the integral converge or diverge?

$$\int_{x=0}^1 \frac{e^{-x}}{x} dx$$

- ☐ It converges
- ☐ It diverges

Question 4

$$\int_{x=1}^2 \frac{dx}{\sqrt{x-1}} =$$

- ☐ $\frac{\sqrt{2}}{2} - 1$
- ☐ -2
- ☐ The integral diverges
- ☐ 1
- ☐ 2
- ☐ $\sqrt{2} - 1$

Question 5

$$\int_{x=0}^4 \frac{2 dx}{\sqrt{16-x^2}} =$$

- ☐ The integral diverges
- ☐ 0
- ☐ π
- ☐ $-\pi$
- ☐ $\frac{\pi}{2}$
- ☐ $-\frac{\pi}{2}$

Question 6

Does the integral converge or diverge?

$$\int_{x=1}^{+\infty} \frac{\sqrt[3]{x+3}}{x^3} dx$$

- ☐ It converges
- ☐ It diverges

Question 7

Does the integral converge or diverge?

$$\int_{x=1}^{+\infty} \frac{1 - 5^{-x}}{x} dx$$

- ☐ It converges
- ☐ It diverges

Question 8

Does the integral converge or diverge?

$$\int_{x=1}^{+\infty} \frac{1}{\sinh x} dx$$

- ☐ It diverges
- ☐ It converges

Question 9

$$\int_{x=0}^{+\infty} e^{-x} \sin x \, dx =$$

- ☐ -1
- ☐ 1
- ☐ $\frac{1}{2}$
- ☐ 0
- ☐ $-\frac{1}{2}$
- ☐ The integral diverges

Question 10

Does the integral converge or diverge?

$$\int_{x=1}^{+\infty} \frac{1}{5\sqrt{x^3 - 1}} \, dx$$

- ☐ It converges
- ☐ It diverges

Question 11

Does the integral converge or diverge?

$$\int_{x=1}^{+\infty} \frac{dx}{x^3 - 8}$$

- ☐ It converges
- ☐ It diverges

Question 12

$$\int_{x=1}^{+\infty} \frac{1}{(x-8)^3} dx =$$

- ☐ $\frac{1}{98}$
- ☐ 0
- ☐ $\frac{97}{98}$
- ☐ $\frac{127}{128}$
- ☐ $\frac{1}{128}$
- ☐ The integral diverges

Question 13

Does the integral converge or diverge?

$$\int_{x=1}^{+\infty} \frac{dx}{\ln^p x} \quad (p \text{ is a positive integer})$$

- ☐ It diverges
- ☐ It converges

☐ In accordance with the Honor Code, I certify that my answers here are my own work.

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