

Math 122 - #7
Improper Integrals

1. $\int_1^{\infty} \frac{1}{x^2} dx$

11. $\int_0^1 \frac{1}{x^2} dx$

2. $\int_1^{\infty} \frac{1}{\sqrt{x}} dx$

12. $\int_0^1 \frac{1}{\sqrt{x}} dx$

3. $\int_{-\infty}^{\infty} \frac{1}{1+x^2} dx$

13. $\int_0^2 \frac{1}{\sqrt{4-x^2}} dx$

4. $\int_0^{\infty} \frac{e^x}{1+e^x} dx$

14. $\int_0^2 \frac{1}{4-x^2} dx$

5. $\int_1^{\infty} e^{-x} dx$

15. $\int_0^{\pi/2} \tan x dx$

6. $\int_0^{\infty} xe^{-x^2} dx$

16. $\int_0^2 \frac{1}{\sqrt[3]{x-1}} dx$

7. $\int_0^{\infty} \frac{1}{4+x^2} dx$

17. $\int_1^2 \frac{1}{x^2\sqrt{4-x^2}} dx$

8. $\int_0^{\infty} \frac{1}{\sqrt{x+1}} dx$

18. $\int_0^2 \frac{x^2}{\sqrt{4-x^2}} dx$

9. $\int_0^{\infty} \frac{(\ln x)^2}{x} dx$

19. $\int_2^4 \frac{dx}{(x-3)^2}$

10. $\int_2^{\infty} \frac{1}{(x-1)^2} dx$

20. $\int_1^5 \frac{x}{\sqrt{5-x}} dx$

Answers

1. 1
2. D.N.E.
3. π
4. D.N.E.
5. $\frac{1}{e}$
6. $\frac{1}{2}$
7. $\frac{\pi}{4}$
8. D.N.E.
9. D.N.E.
10. 1
11. D.N.E.
12. 2
13. $\frac{\pi}{2}$
14. D.N.E.
15. D.N.E.
16. 0
17. $\frac{\sqrt{3}}{4}$
18. π
19. D.N.E.
20. $\frac{44}{3}$