

9. Indeterminate Forms and Improper Integrals

Problem Set 9.1

2. 1

8. 1

12. $\frac{\ln 7}{\ln 2} \approx 2.81$ 16. $-\frac{1}{2}$

Hint: apply L'Hôpital's rule three times.

24. ∞

Problem Set 9.2

4. 3

Hint: apply L'Hôpital's rule three times.

14. 0

20. The limit does not exist

28. e^{-1} 32. $-\frac{3}{2}$

Hint: apply L'Hôpital's rule twice.

Problem Set 9.3

2. $\frac{1}{375}$

8. The integral diverges

14. $\frac{2}{e}$ 18. $\frac{\pi}{128}$ 26. $A = \int_1^{\infty} \frac{1}{x^2 + x} dx = \ln 2$

Problem Set 9.4

4. 6

10. $\frac{3}{4}$

16. The integral diverges

24. The integral diverges

30. The integral diverges