

Review Questions on Integration Methods

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Disclaimer: This is a list of questions to guide you through your studies. Not everything that is asked in these questions will appear in the test, and conversely, there might be a question in the test that was not explicitly covered by these questions.

Solutions to these questions will not be provided.

Methods of Integration

1. $\int \frac{x^2 + 4}{x^2(x - 4)} dx$
2. $\int \tan^5 \theta \sec^3 \theta d\theta$
3. $\int \frac{\sec^6 \theta}{\tan^2 \theta} d\theta$
4. $\int_0^{\pi/2} \sin^3 \theta \cos^2 \theta d\theta$
5. $\int \frac{1}{x\sqrt{x^2 + 1}} dx$
6. $\int \frac{2x^2 - x + 4}{x^3 + 4x} dx$
7. $\int \frac{x^3 + 7}{x^2 + 4x + 3} dx$
8. $\int \frac{1}{\sqrt{49 - 64x^2}} dx$
9. $\int_1^{\infty} \frac{\ln(x)}{x^4} dx$
10. $\int_{-1}^1 \frac{1}{x^2 - 2x} dx$
11. The speedometer reading on a car was observed at one minute intervals and recorded (see table below). Use the Trapezoidal and Simpson's rule to estimate the distance traveled by the car.

t (min)	0	1	2	3	4	5	6	7	8	9	10
velocity (mi/h)	40	42	45	49	52	54	56	57	57	55	56