

- (7.2, #36) Find the volume of the solid generated by revolving the region in the first quadrant bounded by the coordinate axes and the curve $y = \cos(x)$, $0 \leq x \leq \frac{\pi}{2}$ about the line $x = \pi/2$.
- (7.2, #37) Find the *moment about the x-axis*, M_x , of a thin plate with density $\delta = 2$ covering the region in the first quadrant enclosed by $y = x^2e^x$, the x -axis and $x = 1$.
- (7.6, #69) Find the area of the infinite region in the first quadrant between the curve $y = e^{-x}$ and the x -axis.
- (7.3, #41) Solve $(t^2 - 3t + 2)\frac{dx}{dt} = 1$, $x(3) = 0$
- (7.4, #39) Solve $(x^2 + 4)\frac{dy}{dx} = 3$, $y(2) = 0$

Evaluate the given integrals:

- (7.1, #8) $\int \frac{dx}{x - \sqrt{x}}$
- (7.1, #37) $\int \frac{8dx}{x^2 - 2x + 2}$
- (7.2, #22) $\int e^{-y} \cos(y) dy$
- (7.3, #23) $\int \frac{y^2 + 2y + 1}{(y^2 + 1)^2}$
- (7.4, #17) $\int \frac{8dw}{w^2\sqrt{4 - w^2}}$
- (7.6, #26) $\int_0^1 -\ln(x) dx$
- (7.6, #33) $\int_{-1}^{\infty} \frac{d\theta}{\theta^2 + 5\theta + 6}$

Determine if the sequence converges or diverges

- (8.1, #60) $a_n = n \sin(1/n)$
 - (8.2, #27) $a_n = \left(1 + \frac{7}{n}\right)^n$
 - (8.2, #46) $a_n = \left(1 - \frac{1}{n^2}\right)^n$
 - (8.2, #50) $a_n = \sinh(\ln(n))$
 - (8.2, #59) $a_n = n - \sqrt{n^2 - n}$
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