

# SATPREP

## Assignment Integrate with Initial Values

1.  $\frac{dy}{dx} = 3 \sin x$  and  $y = 2$  when  $x = 0$
2.  $\frac{dy}{dx} = 2e^x - \cos x$  and  $y = 3$  when  $x = 0$
3.  $\frac{du}{dx} = 7x^6 - 3x^2 + 5$  and  $u = 1$  when  $x = 1$
4.  $\frac{dA}{dx} = 10x^9 + 5x^4 - 2x + 4$  and  $A = 6$  when  $x = 1$
5.  $\frac{dy}{dx} = -\frac{1}{x^2} - \frac{3}{x^4} + 12$  and  $y = 3$  when  $x = 1$
6.  $\frac{dy}{dx} = 5 \sec^2 x - \frac{3}{2}\sqrt{x}$  and  $y(0) = 7$
7.  $\frac{dy}{dt} = \frac{1}{1+t^2} + 3e^t$  and  $y(0) = 3$
8.  $\frac{dx}{dt} = \frac{1}{t} - \frac{1}{t^2} + 6$  and  $x(1) = 0$
9.  $\frac{dv}{dt} = 4 \sec t \tan t + e^t + 6t$  and  $v(0) = 5$
10.  $\frac{ds}{dt} = t(3t - 2)$  and  $s(1) = 0$

### Answers:

1. $y = -3 \cos x + 5$	2. $y = 2e^x - \sin x + 1$	3. $u = x^7 - x^3 + 5x - 4$
4. $A = x^{10} + x^5 - x^2 + 4x + 1$	5. $y = x^{-1} + x^{-3} + 12x - 11$	6. $y = 5 \tan x - x^{3/2} + 7$
7. $y = \arctan t + 3e^t$	8. $x = \ln t + t^{-1} + 6t - 7$	9. $v = 4 \sec t + e^t + 3t^2$
10. $s = t^3 - t^2$		