1-10: Use the initial value to find the particular solution to the differential equation.

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. $s = t^3 - t^2$		