**9.2 Differential Equations with Initial Conditions**

**Differential Equations –**

Solve $\frac{ds}{dt}=2t$ for $s=3$ and $t=0$

Find the curve $y=F(x)$ that passes through $(-1,0)$ and satisfies $\frac{dy}{dx}=6x^{2}+6x$

Find the equation of the graph that satisfies $\frac{dy}{dx}=e^{-x}$ and passes through the origin.

The line $y=8x+2$ is tangent to the graph of $y=F(x)$. Find $F(x)$ if $F^{'}\left(x\right)=x^{3}$