5. $y = 9\arcsin\frac{x}{3} - x\sqrt{9-x^2}$

$y = 9\arcsin\frac{x}{3} - \underbrace{x}_{P}\underbrace{(9-x^2)^{\frac{1}{2}}}_{Q}$

$P' = 1 \quad Q' = \frac{1}{2}(9-x^2)^{\frac{1}{2}-1}\cdot\frac{d}{dx}(9-x^2)$

$= \frac{1}{2}(9-x^2)^{-\frac{1}{2}}\cdot(-2x)$

$= \frac{-2x}{2(9-x^2)^{1/2}}$

$Q' = \frac{-x}{(9-x^2)^{1/2}}$

$P'Q + PQ'$

$y' = 9\cdot\frac{1}{\sqrt{1-(\frac{x}{3})^2}}\cdot\frac{d}{dx}\left(\frac{x}{3}\right) - \left[1(9-x^2)^{\frac{1}{2}} + x\left(\frac{-x}{(9-x^2)^{1/2}}\right)\right]$

$= \frac{9\cdot\frac{1}{3}}{\sqrt{1-\frac{x^2}{9}}} - \left[\frac{(9-x^2)^{\frac{1}{2}}}{1} - \frac{x^2}{(9-x^2)^{1/2}}\right]$

$= \frac{3}{\sqrt{\frac{9}{9}-\frac{x^2}{9}}} - \left[\frac{(9-x^2)^{\frac{1}{2}}(9-x^2)^{\frac{1}{2}}}{(9-x^2)^{1/2}} - \frac{x^2}{(9-x^2)^{1/2}}\right]$

$= \frac{3}{\sqrt{\frac{9-x^2}{9}}} - \left[\frac{9-x^2-x^2}{(9-x^2)^{1/2}}\right]$

$= \frac{3}{\frac{\sqrt{9-x^2}}{\sqrt{9}}} - \frac{9-2x^2}{(9-x^2)^{1/2}}$

$= \frac{3}{\frac{\sqrt{9-x^2}}{3}} - \frac{9-2x^2}{\sqrt{9-x^2}}$

$3\cdot\frac{3}{\sqrt{9-x^2}} - \frac{9-2x^2}{\sqrt{9-x^2}}$

$= \frac{9-9+2x^2}{\sqrt{9-x^2}}$

$= \boxed{\frac{2x^2}{\sqrt{9-x^2}}}$