Name: _____ Score: _____

Teacher: _____ Date: _____

Derivative – Trigonometric functions

For questions 1 – 10 find the derivative of the following functions.

1. $f(x) = x^2 \sin(x)$

2. $f(x) = x^2 (\tan(x))$

3. $g(z) = \dfrac{\sin(z)}{z^3}$

4. $f(x) = (x + \cos(x))(1 - \sin(x))$

5. $h(y) = 2y \sin(y) + y^2 \cos(y)$

6. $f(x) = \cos(4x)$

7. $f(x) = \sin(x)\cos(x)$	**8.** $s(t) = t^3 - t^2 \sin(t)$
9. $y = 5\cos^3(\pi x)$	**10.** $v(t) = \dfrac{1}{2\sin(t) - 4\cos(t)}$

Solve the following problems

11. Find the equation of the tangent line to $f(x) = \tan(x) + 9\cos(x)$ at $x = \pi$

12. Find the equation of the tangent line to $f(x) = 1 + \cos(x)$ at $x = \dfrac{3\pi}{2}$