Name: _____ Score: _____

Teacher: _____ Date: _____

Differentials

For questions 1 – 6 compute the differential of the given function.

1. $f(x) = x^3 - \sec x$	**2.** $y = 2x^3 + x^2 - 3x + 4$
3. $w = x \cos x$	**4.** $t = e^{x^3 - 2x^2 + 3x}$
5. $h = \ln(3t)\sin(3t)$	**6.** $g = \frac{x^2+3}{x-2}$
For questions 7 – 10, find the differential and evaluate for the given x and dx.	
7. $y = 3x^2 - x + 6,\ x = 2,\ dx = 0.1$	**8.** $y = \frac{1}{x+1}\ x = 1,\ dx = 0.25$
9. $y = \frac{3x^2+2}{\sqrt{x+1}}\ x = 0,\ dx = 0.1$	**10.** $y = x^3 + 2x + \frac{1}{x},\ x = 1,\ dx = 0.05$

11. Compute dy and Δy for $y = e^{x^2}$ as x changes from 3 to 3.01.

12. Compute dy and Δy for $y = x^5 - 2x^3 + 7x$ as x changes from 6 to 5.9.