CALCULUS I – Worksheet #6

For problems 1 – 13, find $\frac{dy}{dx}$.

1. $y = (3x - 8)(x+1)$	2. $y = x(\ln x) + x$	3. $y = \sin(x^2)$	4. $y = \frac{3}{(x^2 - 2)^2}$
5. $y = e^{\cos x}$	6. $y = 2e^{x^2}$	7. $x^2 + xy - 2y^2 = -4$	8. $x = \sin y$
9. $y = \sqrt{3x + 4}$	10. $y = \cos(3x^2 - 1)$	11. $y = \ln(\sin x)$	12. $y = \sin^2(9x) + \cos^2(9x)$
13. $y = \frac{x^3 - 1}{x^3 + 1}$			

14. Find the slope of the tangent line to $y + xy = 2$ at the point (1,1).

15. If $f(x) = x^2 + 4x$, then find $f'(x)$ by <u>using the definition of the derivative.</u>