1. Section 4.2; Page 292; Problems: 6, 8, 16, 25, 30, 40, 49, 51, 70

2. Section 4.3; Page 301; Problems: 4, 6, 10, 12, 18, 21, 24, 28, 38, 44

Problem 4.2.25 If $A = \pi r^2$ then we can think of it as the function $A(r) = \pi r^2$ and $\frac{dA}{dr}$ means take the derivative of the function $A$ with respect to $r$, $\frac{dA}{dr} = 2\pi r$. It is the same as taking the derivative of $f(x) = \pi x^2$.

Problem 4.2.49 $f(x) = x^3 + 3x - 1 \Rightarrow f'(x) = 3x^2 + 3 \Rightarrow f'(0) = 3$ so we have our point $(0, -1)$ and our slope 3 so the equation of the tangent line is $y + 1 = 3x$.

Problem 4.3.4 $f(t) = (t^2 - 3)(t^2 + 4) \Rightarrow f'(t) = (t^2 - 3)(2t) + (t^2 + 4)(2t)$

Problem 4.3.12 $f(x) = \frac{3x - 5}{4x + 1} \Rightarrow f'(x) = \frac{(4x + 1)(3) - (3x - 5)(4)}{(4x + 1)^2}$.

Problem 4.3.38 $y = \frac{(2 - 3x)(1 - x)}{x + 2} \Rightarrow y' = \frac{(x + 2)[(2 - 3x)(-1) + (1 - x)(-3)] - (2 - 3x)(1 - x)(1)}{(x + 2)^2}$.