

MATH 2200
QUIZ 1

Name: _____ Key _____

Problem: Let $f(x) = 2x(x + 3)$.

(a) (5 points) Use the slope-predictor formula we wrote down in class to compute the slope of the line tangent to $y = f(x)$ at the point where $x = a$.

Answer: Write out $f(x) = 2x^2 + 6x$. Then $p = 2$, $q = 6$, $r = 0$. So the slope predictor is $2pa + q = 4a + 6$.

(b) (5 points) Write an equation of the line tangent to the curve $y = f(x)$ at the point $(2, 20)$.

Answer: Plug in $a = 2$ to the slope predictor to get $4 \cdot 2 + 6 = 14$. Then use the point-slope formula, as we know that the tangent line has slope 14 and goes through $(2, 20)$: we get $y - 20 = 14(x - 2)$, or $y = 14x - 8$.