MATH-1150 (DUPRÉ) SPRING 2011 QUIZ 1 ANSWERS

Wednesday 1 February 2012

DIRECTIONS

FIRST: PRINT YOUR LAST NAME IN LARGE CAPITAL LETTERS ON THE UPPER RIGHT CORNER OF EACH SHEET TURNED IN.

SECOND: PRINT YOUR FIRST NAME IN CAPITAL LETTERS DIRECTLY UNDERNEATH YOUR LAST NAME ON EACH SHEET TURNED IN.

THIRD: WRITE YOUR CORRECT SPRING 2011 MATH-1150 SECTION NUMBER DIRECTLY UNDERNEATH YOU FIRST NAME ON EACH SHEET TURNED IN.

FOURTH: Write NEATLY and CLEARLY, putting your answers in the space provided. If I cannot read it you do not get credit.

FIFTH: Any failure to follow any part of any of the above directions can result in additional loss of credit.

1. If $f(x) = 8(x - 5) + 3$, and if m is the slope of the tangent line to the graph of f at the point $(4, 11)$,

then $m = f'(4) = 8$,

since the graph of $y = f(x)$ is a straight line with slope $m = 8$.

Notice there is a typographical error in the statement of the problem because $(4, 11)$ is not a point on the graph of f, it should have been either $(4, -5)$ or $(6, 11)$. Therefore, the technically correct answer is that m is undefined, since a curve does not have a tangent at a point not on the curve, that is , if P is a point not on the curve C, then C does not have a tangent at P. However, since the graph of f is a straight line of slope $m = 8$, it follows that the tangent to the graph of f at any point on the graph must also have slope $m = 8$, in particular at either the points $(4, -5)$ or $(6, 11)$.

2. If $f(x) = 5x^3 + 4x^2 - 3$, then $f'(x) = 5 \cdot 3x^2 + 4 \cdot 2x = 15x^2 + 8x$

3. If $f(x) = 5x^3 + 4x^2 - 3$, then $f(1) = 5 + 4 - 3 = 6$

4. If $f(x) = 5x^3 + 4x^2 - 3$, then $f'(1) = 15 + 8 = 23$

5. If $f(x) = 5x^3 + 4x^2 - 3$, and if m is the slope of the tangent line to the graph of f at the point $(1, f(1))$,

then $m = f'(1) = 23$