# MATH-1150 (DUPRÉ) FALL 2013 TEST 3 ANSWERS

DATE: WEDNESDAY 6 NOVEMBER 2013

1. PRINT YOUR LAST NAME IN $\mathrm{LARGE}$ CAPITAL LETTERS ON THE UPPER RIGHT CORNER OF EACH SHEET TURNED IN.

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

3. WRITE YOUR CORRECT SECTION NUMBER DIRECTLY UNDER YOUR FIRST NAME.

CIRCLE THE BOLDFACE LETTER INDICATING THE CORRECT ANSWER IN EACH OF THE PROBLEMS BELOW.

**4.** If $f(x) = (\sin x) \cdot (\tan x)$, then $f'(x) =$

**A.** $(\cos x) \cdot (\sec x)$
**B.** $(\cos x) \cdot (\tan x) + (\sin x) \cdot (\sec x)$
**C.** $(\cos x) \cdot (\tan x) + (\sin x) \cdot (\sec x) \cdot (\sec x)$
**D.** $(\sin^2 x)/(\cos x)$
**E.** NONE OF THE ABOVE

**CORRECT ANSWER: C**

**5.** If $f(x) = \dfrac{\sin x}{e^x}$, then $f'(x) =$

**A.** $\dfrac{(\cos x - \sin x)}{e^x}$
**B.** $\dfrac{\cos x}{e^x}$
**C.** $e^{-x} \cdot \sin x$
**D.** $\dfrac{e^x \cdot (\sin x - \cos x)}{(e^x)^2}$
**E.** NONE OF THE ABOVE

**CORRECT ANSWER: A**

**6.** If $f(x) = \sin(\tan x)$, then $f'(x) =$

**A.** $(\cos x) \cdot (\sec x)$
**B.** $[\cos(\tan x)] \cdot \sec^2 x$
**C.** $[\sec^2(\sin x)] \cdot \cos x$
**D.** $\cos(\sec^2 x)$
**E.** NONE OF THE ABOVE

**CORRECT ANSWER: B**

**Give the slope of the tangent line to the graph of each of the following functions at the indicated point.**

**7.** $f(x) = e^x$ at the point on the graph where $x = 0$.

**A.** 0

**B.** $x - 1$

**C.** 1

**D.** $e$

**E.** NONE OF THE ABOVE

**CORRECT ANSWER: C**

**8.** $f(x) = \sin x$ at the point on the graph where $x = \pi/3$.

**A.** $\sqrt{(1/2)}$

**B.** 1/2

**C.** $(1/2)^2$

**D.** $[\sqrt{3}]/2$

**E.** NONE OF THE ABOVE

**CORRECT ANSWER: B**

**9.** $f(x) = g(x)h(x)$ at the point where $x = 5$ given that
$$g(5) = 2, g'(5) = 3, h(5) = 7, \text{ and } h'(5) = 4.$$

**A.** 12

**B.** 13

**C.** 14

**D.** 15

**E.** NONE OF THE ABOVE

**CORRECT ANSWER: E**

**10.** If $f(x) = x^2 + x$, with domain $[0, \infty)$, then $f$ has an inverse function $g$ also with domain $[0, \infty)$. Obviously, $f(1) = 2$. Then $g'(2) =$

**A.** 2

**B.** 3

**C.** 1/3

**D.** 1/2

**E.** NONE OF THE ABOVE

**CORRECT ANSWER: C**