

MATH-1150 (DUPRÉ) FALL 2013 TEST 2 ANSWERS

DATE: WEDNESDAY 2 OCTOBER 2013

1. PRINT YOUR LAST NAME IN **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 $f(x) = x^5 - 7x^3 + 8x^2 - 9$, then the derivative of f , denoted f' is given by $f'(x) =$

- A. $5x^4 - 3x^2 + 2x - 9$
- B. $5x^4 - 21x^2 + 16x - 9$
- C. $5x^4 - 21x^2 + 16x$
- D. $x^4 - 7x^2 + 8x$
- E. NONE OF THE ABOVE

CORRECT ANSWER CHOICE: C

5. If $f(x) = x^4 - 9$ and $g(x) = x^3 + 7$, and if $h = f - g$, then $h'(x) =$

- A. $(4x^3)(3x^2) - 63$
- B. $4x^3 + 3x^2$
- C. $4x^3 - 3x^2$
- D. $x^3 - x^2$
- E. NONE OF THE ABOVE

CORRECT ANSWER CHOICE: C

6. If $f(x) = x^4 - 9$ and $g(x) = x^3 + 7$, and if $h = f \cdot g$, then $h'(x) =$

- A. $(4x^3)(3x^2) - 63$
- B. $(4x^3)(3x^2)$
- C. $(4x^3)(x^3 + 7) + (x^4 - 9)(3x^2)$
- D. $(4x^3 - 9)(x^3 + 7) + (x^4 - 9)(3x^2 + 7)$
- E. NONE OF THE ABOVE

CORRECT ANSWER CHOICE: C

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

7. $f(x) = x^2$ at the point on the graph of f where $x = 3$.

- A. 9
- B. 8
- C. 7
- D. 6
- E. NONE OF THE ABOVE

CORRECT ANSWER CHOICE: D

8. $f(x) = 5x^3 - x^{10}$ at the point on the graph of f where $x = 1$.

- A. 5
- B. -5
- C. 15
- D. -10
- E. NONE OF THE ABOVE

CORRECT ANSWER CHOICE: A

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 CHOICE: E

10. The equation of the tangent line to the graph of the function $f(x) = x^5$ at the point where $x = 1$ is

- A. $y + 1 = 5(x - 1)$
- B. $y = x^5 + (5x^4)(x - 1)$
- C. $y = x - 1$
- D. $y + 1 = 5x^4$
- E. NONE OF THE ABOVE

CORRECT ANSWER CHOICE: E