EMCF 07

1. Give the slope of the tangent line to the graph of $f(x) = x^2 - 2x$ at the point where $x = 1$.

    a. 2
    b. 0
    c. 1
    d. DNE
    e. -1
    f. None of these.

2. Give the slope of the tangent line to the graph of $f(x) = 3x - x^2$ at the point where $x = 1$.

    a. 1
    b. 2
    c. 3
    d. DNE
    e. 4
    f. None of these.

3. Give the slope of the **normal line** to the graph of $f(x) = x^2 - x$ at the point where $x = 1$

    a. -1/2
    b. -1
    c. 1/2
    d. DNE
    e. 1
    f. None of these.

4. Give the slope of the **normal line** to the graph of $f(x) = 3x - x^2$ at the point where $x = 1$

    a. -1
    b. -1/2
    c. DNE
    d. -1/3
    e. -1/4
    f. None of these.

5. Let $f(x) = 2x^2 - x$. Give $f\,'(1)$.

    a. 0
    b. 1
    c. DNE
    d. 2
    e. 3
    f. None of these.

6. Give the value of x where the function $f(x) = \dfrac{x^2 - x - 2}{x^2 - 4}$ has a removable discontinuity.

    a. 1
    b. -2
    c. There is no value of x.
    d. 2
    e. 0
    f. None of these.

7. Give the value of x where the function $f(x) = \dfrac{x^2 - x - 2}{x^2 - 4}$ has an infinite discontinuity.

    a. 1
    b. -2
    c. There is no value of x.
    d. 2
    e. 0
    f. None of these.

8. Give a value of A so that the function $f(x) = \begin{cases} x - x^2, & x < 1 \\ 2x^3 - Ax, & x \geq 1 \end{cases}$

   is continuous.
    a. 1
    b. 0
    c. There is no such value.
    d. -1
    e. 2
    f. None of these.

9. Let $f(x) = \sqrt{x+1}$. Give $f\,'(3)$.

    a. 1/2
    b. -1/2
    c. There is no such value.
    d. 1/4
    e. -1/4
    f. None of these.

10. Let $f(x) = x^2 + x$. Give $f'(1)$.

    a. 1

    b. 2

    c. 3

    d. DNE

    e. 4

    f. None of these.