

## 2.7 Hmwk - Derivatives and Rates of Change (Homework)

 INSTRUCTOR

**Francis Adjei**

Texas A&M University at Galveston

Past Due **Due Date: FRI, FEB 27, 2026 11:59 PM CST**

**Current Score: 16 / 16 POINTS | 100.0 %**

Due date has passed. No changes can be made without an approved extension request.  
**You may not be granted an extension if you have already viewed the answer key.**

 **VIEW ANSWER KEY**

### Scoring and Assignment Information ^

QUESTION	1	2	3	4	5	6	7
POINTS	2 / 2	3 / 3	2 / 2	2 / 2	2 / 2	3 / 3	2 / 2

### Assignment Submission

For this assignment, you submit answers by question parts. The number of submissions remaining for each question part only changes if you submit or change the answer.

## Assignment Scoring

Your best submission for each question part is used for your score.

1. [2 / 2 Points]

DETAILS

MY NOTES

PREVIOUS ANSWERS

ASK YOUR TEACHER


PRACTICE ANOTHER

S<sub>Calc</sub>ET9 2.7.005.EP.

Consider the following curve.


$$y = 3x^2 - 6x + 1$$

Find the slope  $m$  of the tangent line at the point  $(3, 10)$ .

$m =$    Awesome job!

Find an equation of the tangent line to the curve at the point  $(3, 10)$ .

$y =$

 Nice job!

### Resources

[Read It](#)

2. [3 / 3 Points]

DETAILS

MY NOTES

PREVIOUS ANSWERS

ASK YOUR TEACHER

PRACTICE ANOTHER

S<sub>Calc</sub>ET9 2.7.007.EP.

Consider the following curve.

$$y = \frac{x + 1}{x - 7}$$

Find the slope  $m$  of the tangent line at the point  $(6, -7)$ .

$m =$    That's it!

Find an equation of the tangent line to the curve at the point  $(6, -7)$ .

$y =$

~~\$\$\$~~  $-8x + 41$

 Good work.

**Resources**

[Read It](#)

3. [2 / 2 Points]

DETAILS

MY NOTES

PREVIOUS ANSWERS

ASK YOUR TEACHER

PRACTICE ANOTHER

S<sub>Calc</sub>ET9 2.7.019.

Use this [definition](#) to find  $f'(a)$  at the given number  $a$ .

$$f(x) = \sqrt{5x + 1}, \quad a = 3$$

 Nicely done!

**Resources**

[Read It](#)

4. [2 / 2 Points]

DETAILS

MY NOTES

PREVIOUS ANSWERS

ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 2.7.012.MI.

If a rock is thrown upward on the planet Mars with a velocity of 19 m/s, its height above the ground (in meters) after  $t$  seconds is given by  $H = 19t - 1.86t^2$ .

- (a) Find the velocity (in m/s) of the rock after 2 seconds.

✓ m/s

- (b) Find the velocity (in m/s) of the rock when  $t = a$ .

$19 - 3.72a$

✓ m/s

- (c) When (in seconds) will the rock hit the surface? (Round your answer to one decimal place.)

$t =$  ✓ s

- (d) With what velocity (in m/s) will the rock hit the surface?

✓ m/s

**Resources**

[Read It Tutorial](#)

5. [2 / 2 Points]

DETAILS

MY NOTES

PREVIOUS ANSWERS

ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 2.7.008.EP.

Consider the following curve.

$$y = \sqrt{8 - 41x}$$

Find the slope  $m$  of the tangent line at the point  $(-1, 7)$ .

$m =$    Perfect!

Find an equation of the tangent line to the curve at the point  $(-1, 7)$ .

$y =$

~~\$\$\$-4114x+5714~~

 Nicely done.

### Resources

[Read It](#)

6. [3 / 3 Points]

DETAILS

MY NOTES

PREVIOUS ANSWERS

ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 2.7.027.EP.

Consider the function  $y = B(x)$  such that  $B(12) = 0$  and  $B'(12) = -\frac{1}{3}$ . Find the slope  $m$  of the tangent line to the graph of  $y = B(x)$  at  $x = 12$ .

$m =$    Awesome!

Find the point of intersection of  $y = B(x)$  and its tangent line at  $x = 12$ .

$(x, y) = ($

12, 0

 )

Find an equation of the tangent line of  $y = B(x)$  at  $x = 12$ .

$y = -\frac{1}{3}x + 4$

 Good job!

**Resources**

[Read It](#)

7. [2 / 2 Points]

DETAILS

MY NOTES

PREVIOUS ANSWERS

ASK YOUR TEACHER

PRACTICE ANOTHER

S CalcET9 2.7.013.MI.

The displacement (in meters) of a particle moving in a straight line is given by the equation of motion  $s = \frac{4}{t^2}$ , where  $t$  is measured in seconds. Find the velocity (in m/s) of the particle at times  $t = a$ ,  $t = 1$ ,  $t = 2$ , and  $t = 3$ .

$t = a$      $v =$

✓ m/s

$t = 1$      $v =$   ✓ m/s

$t = 2$      $v =$   ✓ m/s

$t = 3$      $v =$   ✓ m/s

**Resources**

[Read It Watch It Tutorial](#)

[Home](#)   [My Assignments](#)