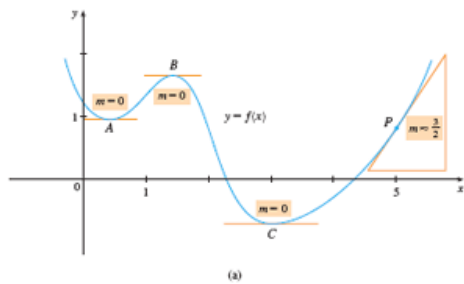


Week 5 Tuesday Homework (1322085)

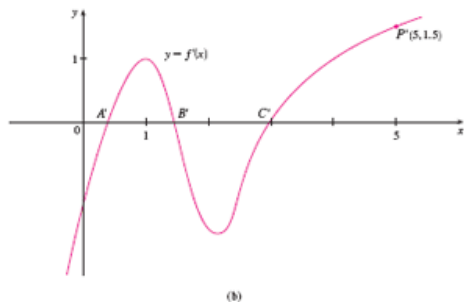
Question 123456789101112131415161718

1. Question DetailsSCalcET6 2.8.AE.01. [679727]



**EXAMPLE 1** The graph of a function  $f$  is given to the left. Use it to sketch the graph of the derivative  $f'$ .

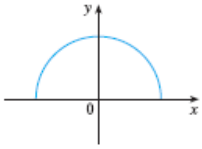
**SOLUTION** We can estimate the value of the derivative at any value of  $x$  by drawing the tangent at the point  $(x, f(x))$  and estimating its slope. For instance, for  $x = 5$  we draw the tangent at  $P$  in the figure and estimate its slope to be about  $3/2$ , so  $f'( \text{ } ) = \text{ }$ . This allows us to plot the point  $P'( \text{ } , \text{ } )$  on the graph of  $f'$  directly beneath  $P$ . Repeating this procedure at several points, we get the lower graph shown in the figure. Notice that the tangents at  $A$ ,  $B$ , and  $\text{ }$  are horizontal, so the derivative is  $\text{ }$  there and the graph of  $f'$  crosses the  $x$ -axis at the points  $A'$ ,  $B'$ , and  $C'$ , directly beneath  $A$ ,  $B$ , and  $C$ . Between  $A$  and  $B$  the tangents have  $\text{---Select---}$  slope, so  $f'(x)$  is  $\text{---Select---}$  there. But between  $B$  and  $C$  the tangents have  $\text{---Select---}$  slope, so  $f'(x)$  is  $\text{---Select---}$  there.



[Video Example](#)

[Online Textbook](#)

2. Question DetailsSCalcET6 2.8.007. [795742]  
The graph of a function  $f$  is given. Select the graph of  $f'$ .



3. Question DetailsSCalcET6 2.8.019.MI. [1386874]  
You are given the following function.

$$f(x) = \frac{1}{2}x - \frac{1}{6}$$

(a) Find the derivative of the function using the definition of derivative.

$f'(x) =$   [Tutorial](#) (b) State the domain of the function.

,   [Tutorial](#) (c) State the domain of its derivative.

,   [Tutorial](#)

4. Question DetailsSCalcET6 2.8.023. [1288400]  
You are given the following function.

$$f(x) = x^3 - 7x + 7$$

(a) Find the derivative of the function using the definition of derivative.

$f'(x) =$

(b) State the domain of the function. (If you need to use  $-\infty$  or  $\infty$ , enter -INFINITY or INFINITY.)

,

(c) State the domain of its derivative. (If you need to use  $-\infty$  or  $\infty$ , enter -INFINITY or INFINITY.)

,

5. Question DetailsSCalcET6 2.8.025. [1289225]

You are given the following function.

$$g(x) = \sqrt{1 + 2x}$$

(a) Find the derivative of the function using the definition of derivative.

$$g'(x) = \boxed{\phantom{000}}$$

(b) State the domain of the function. (If you need to use  $-\infty$  or  $\infty$ , enter -INFINITY or INFINITY.)

,

(c) State the domain of its derivative. (If you need to use  $-\infty$  or  $\infty$ , enter -INFINITY or INFINITY.)

,

6. Question DetailsSCalcET6 2.8.027.MI. [1387572]

You are given the following function.

$$G(t) = \frac{4t}{t + 9}$$

(a) Find the derivative of the function using the definition of derivative.

$$G'(t) = \boxed{\phantom{000}}$$

[Tutorial](#) (b) Select the domain of the function.

- $(-\infty, -9] \cup [9, \infty)$
- $\mathbb{R}$
- $(-\infty, -9) \cup (-9, \infty)$
- $(-9, 9)$
- $[-9, 9]$

[Tutorial](#) (c) Select the domain of its derivative.

- $(-\infty, -9] \cup [9, \infty)$
- $(-9, 9)$
- $\mathbb{R}$
- $[-9, 9]$
- $(-\infty, -9) \cup (-9, \infty)$

[Tutorial](#)

7. Question DetailsSCalcET6 2.8.031. [1288228]

If  $f(x) = x^4 + 7x$ , find  $f'(x)$ .

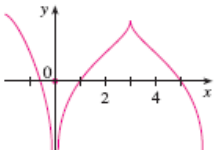
8. Question DetailsSCalcET6 2.8.032. [1289448]

If  $f(t) = t^2 - \sqrt{t}$ , find  $f'(t)$ .

9. Question DetailsSCalcET6 2.8.036. [679925]

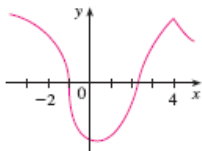
The graph of  $f$  is given. State the numbers at which  $f$  is not differentiable. (Give your answers in increasing order.)



10. Question DetailsSCalcET6 2.8.037. [679841]

The graph of  $f$  is given. State the numbers at which  $f$  is not differentiable. (Give your answers in increasing order.)

11. Question DetailsSCalcET6 2.8.045. [1289693]

Use the definition of the derivative to find  $f'(x)$  and  $f''(x)$ .

$$f(x) = 5 + 5x - x^2$$

$$f'(x) = \text{[ ]}$$

$$f''(x) = \text{[ ]}$$

12. Question DetailsSCalcET6 2.8.046. [1289774]

Use the definition of the derivative to find  $f'(x)$  and  $f''(x)$ .

$$f(x) = \frac{9}{x}$$

$$f'(x) = \text{[ ]}$$

$$f''(x) = \text{[ ]}$$

13. Question DetailsSCalcET6 3.1.006. [1288186]

Differentiate the following function.

$$F(x) = \frac{2}{7}x^6$$

$$F'(x) = \text{[ ]}$$

14. Question DetailsSCalcET6 3.1.007. [1288602]

Differentiate the following function.

$$f(x) = 5x^3 - 8x + 7$$

$$f'(x) = \text{[ ]}$$

15. Question DetailsSCalcET6 3.1.008. [1289759]

Differentiate the following function.

$$f(t) = \frac{1}{6}t^6 - 9t^4 + 7t$$

$$f'(t) = \text{[ ]}$$

16. Question DetailsSCalcET6 3.1.009. [1288405]

Differentiate the following function.

$$f(t) = \frac{8}{9}(t^9 + 3)$$

$$f'(t) = \text{[ ]}$$

17. Question DetailsSCalcET6 3.1.010. [1288648]

Differentiate the following function.

$$h(x) = (9x - 1)(4x + 8)$$

$$h'(x) = \text{[ ]}$$

18. Question DetailsSCalcET6 3.1.012. [1288445]  
Differentiate the following function.

$$y = 7e^x + 2$$

$y' =$

#### Assignment Details

Name (AD): **Week 5 Tuesday Homework (1322085)**

Submissions Allowed: **5**

Category: **Homework**

Code:

Locked: **No**

Author: **Jernigan, John** ([jjernigan@ccp.edu](mailto:jjernigan@ccp.edu))

Last Saved: **Jul 24, 2010 06:29 PM EDT**

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