

## Week 6 Friday Homework (1322878)

Question 12345678910111213141516

1. Question DetailsSCalcET6 3.3.AE.01. [1290876]

[Video Example](#) [Online Textbook](#)**EXAMPLE 1** Differentiate  $y = 5x^5 \sin(x)$ .**SOLUTION** Using the Product Rule and Formula 4, we have

$$\begin{aligned} \frac{d}{dx} &= 5x^5 \frac{d}{dx} ( \quad ) + \sin(x) \frac{d}{dx} ( \quad ) \\ &= 5x^5 \quad + \quad \sin(x) \end{aligned}$$

2. Question DetailsSCalcET6 3.3.001. [1289970]

Differentiate the following function.

$$f(x) = 8x^4 - 5\cos(x)$$

$$f'(x) = \quad$$

3. Question DetailsSCalcET6 3.3.003. [1289939]

Differentiate the following function.

$$f(x) = 7\sin(x) + 4/9 \tan(x)$$

$$f'(x) = \quad$$

4. Question DetailsSCalcET6 3.3.005. [1291193]

Differentiate the following function.

$$g(t) = 8t^3 \cos(t)$$

$$g'(t) = \quad$$

5. Question DetailsSCalcET6 3.3.007. [1291212]

Differentiate the following function.

$$h(\theta) = 5\sec(\theta) + 6e^\theta \cot(\theta)$$

$$h'(\theta) = \quad$$

6. Question DetailsSCalcET6 3.3.009.MI. [1386446]

Differentiate the following function.

$$y = \frac{4x}{3 - \tan x}$$

$$y' = \quad$$
 [Tutorial](#)

7. Question DetailsSCalcET6 3.3.010. [1291755]

Differentiate the following function:

$$y = \frac{2 + \sin(x)}{2x + \cos(x)}$$

$$y'(x) = \quad$$

8. Question DetailsSCalcET6 3.3.013. [1290081]

Differentiate the following function.

$$y = \frac{\cos(x)}{x^5}$$

$$y' = \quad$$

9. Question DetailsSCalcET6 3.3.022. [1290779]

Find an equation of the tangent line to the curve at the given point.

$$y = 3 e^x \cos(x)$$

$$P = (0, 3)$$

$$y = \boxed{\phantom{000000}}$$

10. Question DetailsSCalcET6 3.3.024. [1290101]

Find an equation of the tangent line to the curve at the given point.

$$y = \frac{8}{\sin(x) + \cos(x)}$$

$$P = (0, 8)$$

$$y = \boxed{\phantom{000000}}$$

11. Question DetailsSCalcET6 3.3.028. [1290067]

Use the equation given below to find  $f'(x)$ , and  $f''(x)$ .

$$f(x) = 3 e^x \cos(x)$$

$$f'(x) = \boxed{\phantom{000000}}$$

$$f''(x) = \boxed{\phantom{000000}}$$

12. Question DetailsSCalcET6 3.3.032. [1290089]

Use the equations and relations given below to answer the following questions.

$$f\left(\frac{\pi}{3}\right) = 6 \qquad f'\left(\frac{\pi}{3}\right) = -4$$

$$g(x) = f(x) \cos(x) \qquad h(x) = \frac{-\sin(x)}{f(x)}$$

$$(a) \ g'\left(\frac{\pi}{3}\right) = \boxed{\phantom{000000}}$$

$$(b) \ h'\left(\frac{\pi}{3}\right) = \boxed{\phantom{000000}}$$

13. Question DetailsSCalcET6 3.3.039. [656938]

Find the limit for the given function.

$$\lim_{x \rightarrow 0} \frac{\sin(2x)}{x}$$

$$\boxed{\phantom{000000}}$$

14. Question DetailsSCalcET6 3.3.040. [807078]

Find the limit for the given function.

$$\lim_{x \rightarrow 0} \frac{\sin(3x)}{\sin(6x)}$$

$$\boxed{\phantom{000000}}$$

15. Question DetailsSCalcET6 3.3.AE.06. [1290138]

[Video Example](#) 

[Online Textbook](#)

**EXAMPLE 6**

Calculate  $\lim_{x \rightarrow 0} (1/x)\tan(x)$

**SOLUTION** Here we rewrite  $\tan(x)$ :

$$\begin{aligned} \lim_{x \rightarrow 0} (1/x)\tan(x) &= \lim_{x \rightarrow 0} \frac{1/x}{\cos(x)} \\ &= \lim_{x \rightarrow 0} \frac{1}{x \cos(x)} \\ &= \lim_{x \rightarrow 0} \frac{1}{x} \cdot \lim_{x \rightarrow 0} \frac{1}{\cos(x)} \\ &= \lim_{x \rightarrow 0} \frac{1}{x} \cdot \frac{1}{\cos(0)} \\ &= \frac{1}{\cos(0)} \end{aligned}$$

16. Question DetailsSCalcET6 3.3.045. [656882]

Find the limit for the given function.

$$\lim_{\theta \rightarrow 0} \frac{\sin(\theta)}{3\theta + \tan(\theta)}$$

Assignment Details

Name (AD): **Week 6 Friday Homework (1322878)**

Submissions Allowed: **5**

Category: **Homework**

Code:

Locked: **No**

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

Last Saved: **Jul 25, 2010 03:17 PM EDT**

Permission: **Protected**

Randomization: **Person**

Which graded: **Last**

**Feedback Settings**

**Before due date**

Question Score

Assignment Score

Publish Essay Scores

Question Part Score

Mark

Add Practice Button

Help/Hints

Response

Save Work

**After due date**

Question Score

Assignment Score

Publish Essay Scores

Key

Question Part Score

Solution

Mark

Add Practice Button

Help/Hints

Response