

Week 7 Tuesday Homework (1323439)

Question 123456789101112131415161718

1. Question DetailsSCalcET6 3.4.AE.02. [1291855]

[Video Example](#) [Online Textbook](#)**EXAMPLE 2** Differentiate (a) $y = \sin(x^8)$ and (b) $y = (\sin(x))^8$.**SOLUTION** (a) If $y = \sin(x^8)$, then the outer function is the **sine** function and the inner function is the power function, so the Chain Rule gives

$$\frac{dy}{dx} = \frac{d}{dx} \sin(x^8) = \cos(x^8) * \boxed{}$$

(b) Note that $(\sin(x))^8 = (\sin(x)) \boxed{}$. Here the outer function is the power function and the inner function is the **sine** function. So

$$\frac{dy}{dx} = \frac{d}{dx} (\sin(x))^8 = \boxed{} * \cos(x)$$

2. Question DetailsSCalcET6 3.4.AE.04. [1290134]

[Video Example](#) [Online Textbook](#)**EXAMPLE 4** Find $f'(x)$.

$$f(x) = \frac{1}{\sqrt[3]{x^4 + x + 8}}$$

SOLUTION First, rewrite $f : f(x) = (x^4 + x + 8) \boxed{}$. Thus

$$\begin{aligned} f'(x) &= \boxed{} (x^4 + x + 8) \boxed{} \frac{d}{dx} (\boxed{}) \\ &= \boxed{} (x^4 + x + 8) \boxed{} (\boxed{}) \end{aligned}$$

3. Question DetailsSCalcET6 3.4.AE.08. [1291735]

[Video Example](#) [Online Textbook](#)**EXAMPLE 8** If $f(x) = \sin(\cos(\cot(x)))$, then

$$\begin{aligned} f'(x) &= \boxed{} (\cos(\cot(x))) * \frac{d}{dx} (\boxed{}) \\ &= \boxed{} (\cos(\cot(x))) * \boxed{} (\cot(x)) * \frac{d}{dx} (\boxed{}) \\ &= \boxed{} (\cos(\cot(x))) * \boxed{} (\cot(x)) * (\boxed{} (x))^2 \end{aligned}$$

Notice that we used the Chain Rule twice.

4. Question DetailsSCalcET6 3.4.Tut.02. [657232]

5. Question DetailsSCalcET6 3.4.Tut.08. [656987]

6. Question DetailsSCalcET6 3.4.002. [1291156]

Consider the following.

$$y = \sqrt{8 + 3x}$$

(a) Write the composite function in the form $f(g(x))$ by identifying the inner function $u = g(x)$ and the outer function $y = f(u)$.

$$u = g(x) = \boxed{}$$

$$y = f(u) = \boxed{}$$

(b) Find the derivative dy/dx .

$$dy/dx = \boxed{}$$

7. Question DetailsSCalcET6 3.4.003. [1291142]

Write the composite function in the form $f(g(x))$.

$$y = (3 - x^2)^{11}$$

$$u = g(x) = \boxed{}$$

$$y = f(u) = \boxed{}$$

Then find the derivative dy/dx .

$$\boxed{}$$

8. Question DetailsSCalcET6 3.4.006. [1291664]

Write the composite function in the form $f(g(x))$.

$$y = \sin(e^x)$$

$$u = g(x) = \boxed{}$$

$$y = f(u) = \boxed{}$$

Then find the derivative dy/dx .

$$\boxed{}$$

9. Question DetailsSCalcET6 3.4.010. [1291638]

Find the derivative of the function.

$$f(x) = (3 + x^3)^{\frac{1}{5}}$$

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

10. Question DetailsSCalcET6 3.4.015. [1291633]

Find the derivative of the function.

$$y = xe^{-4x}$$

$$y' = \boxed{}$$

11. Question DetailsSCalcET6 3.4.018.MI. [1386705]

Find the derivative of the function.

$$h(t) = (t^4 - 1)^7 (t^3 + 1)^6$$

$$h'(t) = \boxed{} \text{ [Tutorial](#)}$$

12. Question DetailsSCalcET6 3.4.021. [1291299]

Find the derivative of the function.

$$y = \left(\frac{x^2 + 2}{x^2 - 2} \right)^4$$

$$y' = \boxed{}$$

13. Question DetailsSCalcET6 3.4.027. [1290237]
Find the derivative of the function.

$$y = \frac{f}{\sqrt{f^2 + 7}}$$

$$y' = \boxed{}$$

14. Question DetailsSCalcET6 3.4.032. [1291561]
Find the derivative of the function.

$$y = (\tan(7\theta))^2$$

$$y'(\theta) = \boxed{}$$

15. Question DetailsSCalcET6 3.4.040. [1290854]
Find the derivative of the function.

$$y = \cos(\cos(\cos(x)))$$

$$y'(x) = \boxed{}$$

16. Question DetailsSCalcET6 3.4.048. [1291122]
Find the first and second derivatives of the function.

$$y = xe^{5x}$$

$$y' = \boxed{}$$

$$y'' = \boxed{}$$

17. Question DetailsSCalcET6 3.4.061. [632592]
If $F(x) = f(g(x))$, where $f(0) = 2$, $f'(0) = 8$, $f'(4) = 5$, $g(4) = 0$, and $g'(4) = 9$, find $F'(4)$.
 $F'(4) = \boxed{}$

18. Question DetailsSCalcET6 3.4.064. [807130]
Let f and g be the functions in the table below.

x	$f(x)$	$g(x)$	$f'(x)$	$g'(x)$
1	3	2	4	6
2	1	3	5	7
3	2	1	7	9

(a) If $F(x) = f(f(x))$, find $F'(3)$.

$$\boxed{}$$

(b) If $G(x) = g(g(x))$, find $G'(2)$.

$$\boxed{}$$

Assignment Details

Name (AD): **Week 7 Tuesday Homework (1323439)**

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