

CALCULUS  
QUIZ 3.6 (The Chain Rule)

NAME Answers  
DATE \_\_\_\_\_ PERIOD \_\_\_\_\_

Find  $dy/dx$  for each of the following:  
Justify your answer.

1.  $f(x) = (2x^2 + 5)^7$

$$f'(x) = 28x(2x^2 + 5)^6$$

2.  $f(x) = \sqrt{2x+1} (x^3)$

$$f'(x) = \frac{x^2(7x+3)}{\sqrt{2x+1}}$$

3.  $f(x) = \sin^3 4x$

$$f'(x) = 12 \sin^2(4x) \cos(4x)$$

OR

$$= 6 \sin(4x) \sin(8x)$$

4.  $f(x) = \cos(\sin 2x)$

$$f'(x) = -2 \sin(\sin 2x) \cdot \cos(2x)$$

2nd derivative!!

5. find  $f''(x)$  if  $f(x) = 9 \tan\left(\frac{x}{3}\right)$  NOTE:  $f'(x) = 3 \sec^2\left(\frac{x}{3}\right)$

$$f''(x) = 2 \sec^2\left(\frac{x}{3}\right) \tan\left(\frac{x}{3}\right)$$

## AP Calculus AB

Name Answers

## 3.5/3.6 Quiz

Period \_\_\_\_\_ Date \_\_\_\_\_

Directions: Given the following information, find the value of the derivative of the functions at  $x = 6$ .

$x$	$f(x)$	$g(x)$	$f'(x)$	$g'(x)$
3	1	8	-3	-5
6	3	-2	4	5
8	-1	3	$\pi$	4
1	2	-6	5	0

6.  $f(x)g(x)$

$$\textcircled{7}$$

7.  $\frac{g(x)}{f(x)}$

$$\textcircled{\frac{23}{9}}$$

8.  $\sqrt{f(x)+g(x)}$

$$\textcircled{\frac{9}{2}}$$

9.  $f(f(x))$

$$\textcircled{-12}$$