1.(1 pt) If $f(x) = 7x^2 - 2x - 4$, find $f'(x)$.

Find $f'(5)$.

2.(1 pt) If $f(x) = 4x^2 - 6x - 38$, find $f'(x)$.

3.(1 pt) If $f(x) = 5x^8 - 4x^5 - 2x^3 + 2x$, find $f'(x)$.

Find $f'(5)$.

4.(1 pt) If $f(x) = (7x^2 - 8)(7x + 5)$, find $f'(x)$.

Find $f'(1)$.

5.(1 pt) If $f(x) = (7x^2 - 4)(4x + 2)$, find $f'(x)$.

6.(1 pt) If $f(t) = (t^2 + 2t + 7)(4t^2 + 4)$, find $f'(t)$.

Find $f'(1)$.

7.(1 pt)
Let $f(t) = (t^2 + 2t + 4)(3t^2 + 6)$.
(a) $f'(t) =$ _____
(b) $f'(3) =$ _____
[NOTE: Your answer to part (a) should be a function in terms of the variable 't' and not a number! Your answer to part (b) should be a number.]

8.(1 pt) If $f(t) = 4t^{-6}$, find $f'(t)$.

Find $f'(3)$.

9.(1 pt) If

$$f(t) = \frac{\sqrt{5}}{t^7},$$

find $f'(t)$.

Find $f'(1)$.

10.(1 pt) If $f(t) = \frac{5}{t^4}$, find $f'(t)$.

[NOTE: Your answer should be a function in terms of the variable 't' and not a number!]

11.(1 pt) If

$$f(x) = \frac{2x + 4}{4x + 6},$$

find $f'(x)$.

Find $f'(5)$.

12.(1 pt)
Let $f(x) = \frac{5}{5x+4}$.
$f'(x) =$ _____

13.(1 pt) If

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

find $f'(x)$.

Find $f'(5)$.

14.(1 pt) If

$$f(x) = \frac{4x^2 + 5x + 6}{\sqrt{x}},$$

find $f'(x)$.

Find $f'(2)$.

15.(1 pt) If $f(x) = \frac{5x^2+8x+3}{\sqrt{x}}$, find $f'(9)$.

16.(1 pt) If

$$f(x) = \frac{\sqrt{x} - 3}{\sqrt{x} + 3}$$

find $f'(x)$.

Find $f'(3)$.

17.(1 pt)
Let $f(x) = \frac{\sqrt{x}-6}{\sqrt{x}+6}$.
$f'(16) =$ _____

18.(1 pt) If $f(x) = \sqrt{6x}$, find $f'(x)$.

Find $f'(7)$.

19.(1 pt) If $f(x) = \sqrt{18x}$, find $f'(x)$.

20.(1 pt) If $f(x) = 5 + \frac{6}{x} + \frac{3}{x^2}$, find $f'(x)$.

Find $f'(4)$.

21.(1 pt) If $f(x) = 2 + \frac{6}{x} + \frac{4}{x^2}$, find $f'(x)$.

22.(1 pt)
Let $f(x) = 8x^6\sqrt{x} + \frac{-3}{x^3\sqrt{x}}$.
$f'(x) =$ _____
[NOTE: Your answer should be a function in terms of the variable 'x' and not a number!]

23.(1 pt) If $f(x) = 3x\sqrt{x} + \frac{4}{x^2\sqrt{x}}$, find $f'(x)$.

Find $f'(1)$.

24.(1 pt) If $f(x) = 6x\sqrt{x} + \frac{5}{x^2\sqrt{x}}$, find $f'(1)$.

25.(1 pt) If

$$f(x) = \frac{7x^3 - 5}{x^4}$$

find $f'(x)$.

Find $f'(4)$.

26.(1 pt) If $f(x) = \frac{5x^3-5}{x^4}$, find $f'(x)$.

27.(1 pt) If $f(x) = \frac{-6x^5-7x^4-6x^3}{x^4}$, find $f'(x)$.

28.(1 pt) If $f(x) = 2\sqrt{x}(x^3 - 4\sqrt{x} + 6)$, find $f'(x)$.

Find $f'(3)$.

29.(1 pt) If $f(x) = 3\sqrt{x}(x^3 - 4\sqrt{x} + 3)$, find $f'(16)$.

30.(1 pt) Calculate $G'(2)$ to 3 significant figures where

$$G(x) = (-1x - 2)^{10}(-1x^2 + 0x + 2)^{12}$$

31.(1 pt) Calculate $f'(4)$ to 3 significant figures where

$$f(t) = (4t^2 + 3t + 1)^{-8}$$

Tip: You can enter an answer such as 3.14e-1 for 0.314.

32.(1 pt) Find the y-intercept of the tangent line to

$$y = \frac{-0.8}{\sqrt{4 + 8x}}$$

at $(4, -0.133333333333333)$.

33.(1 pt)
Let $f(x) = -6e^{x+2} + e^3$.
$f'(0) =$ _____
[NOTE: A small algebraic manipulation is needed first to get f(x) into a form so that the derivative can be taken.]

34.(1 pt)
Given that

$$f(x) = x^{11}h(x)$$
$$h(-1) = 3$$
$$h'(-1) = 6$$

Calculate $f'(-1)$. _____
[HINT: Use the product rule and the power rule.]

35.(1 pt) Find the derivative of the function

$$g(x) = (4x^2 - 5x - 3)e^x$$

$g'(x) =$ _____

36.(1 pt) Find the derivative of the function

$$g(x) = \frac{e^x}{4 + 5x}$$

$g'(x) =$ _____

37.(1 pt) Given

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

The derivative function is given by

$$f'(x) = \frac{\_\_\ x^2 + \_\_\ \ x + \_\_}{(x^2 + \_\_\_\_\_\ )^2}$$

38.(1 pt) If $f(x) = 3e^x - 9x^5 + 5$, find $f'(x)$.

39.(1 pt)
Let $f(x) = 18$.
Then $f'(7) =$ _____ .
And after simplifying $f'(x) =$ _____ .

40.(1 pt)
Let $f(x) = -10x + 1$.
Then $f'(-10) =$ _____ .
And after simplifying $f'(x) =$ _____ .

41.(1 pt)
Let $f(x) = x^2 + 8x - 10$.
Then $f'(-1) =$ _____ .
And after simplifying $f'(x) =$ _____ .

42.(1 pt)
Let $f(x) = -4x(x - 1)$.
Then $f'(1) =$ _____ .
And after simplifying $f'(x) =$ _____ .
Hint: You may want to expand and simplify the expression for $f(x)$ first.

43.(1 pt)
Let $f(x) = 2x^3 + 6x - 6$.
Then $f'(0) =$ _____ .
And after simplifying $f'(x) =$ _____ .

44.(1 pt)
Let $f(x) = \frac{10}{x + 4}$
Then $f'(3) =$ _____ .
And after simplifying $f'(x) =$ _____ .

45.(1 pt)
Let $f(x) = \frac{2x}{x - 1}$
Then $f'(-2) =$ _____ .
And after simplifying $f'(x) =$ _____ .

46.(1 pt)
Let $f(x) = \sqrt{18 + x}$
Then $f'(-14) =$ _____ .
And after simplifying $f'(x) =$ _____ .

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