1. (1 point) If $f(x) = 2x+9$, find $f'(x)$.

_____

Answer(s) submitted:

-

(incorrect)

2. (1 point) Find $f'(x)$ for $f(x) = \dfrac{1}{x^3}$.

$f'(x)$ = _____

Answer(s) submitted:

-

(incorrect)

3. (1 point) If $f(x) = 5 + \dfrac{7}{x} + \dfrac{5}{x^2}$, find $f'(x)$.

_____

Find $f'(1)$.

_____

Answer(s) submitted:

-
-

(incorrect)

4. (1 point) Find $f'(x)$ for $f(x) = \dfrac{x^{10}}{16}$.

$f'(x)$ = _____

Answer(s) submitted:

-

(incorrect)

5. (1 point) Let $f(x) = -\sqrt{14}$. Find $f'(x)$.

$f'(x)$ = _____

Answer(s) submitted:

-

(incorrect)

6. (1 point)

Find the derivative of

$$f(x) = 6x^4\sqrt{x} + \frac{-2}{x^3\sqrt{x}}$$

$f'(x)$ = _____

Answer(s) submitted:

-

(incorrect)

7. (1 point) If $f(x) = (6x^2-6)(7x+5)$, find $f'(x)$.

_____

Answer(s) submitted:

-

(incorrect)

8. (1 point) Suppose that $f(x) = 9x^2 - 5x$. Find:

(A) $f'(x)$ = _____

(B) The slope of the graph of $f(x)$ at $x = 2$ and $x = 3$.
Slope at x = 2: _____
Slope at x = 3: _____

(C) An equation for the tangent lines at $x = 2$ and $x = 3$.
Tangent line at x = 2: y = _____
Tangent line at x = 3: y = _____

(D) List all values of x where the tangent line is horizontal. (Hint: a line is horizontal when its slope is 0.)
Value(s) of x = _____

Answer(s) submitted:

-
-
-
-
-
-

(incorrect)

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1. $f(x) = 2x + 9$. Find $f'(x)$

Soln $\frac{d}{dx}(2x+9)$

$= \frac{d}{dx} 2x + \frac{d}{dx} 9$

$= 2$

2. $f(x) = \frac{1}{x^3}$. Find $f'(x)$

Soln $\frac{d}{dx}\left(\frac{1}{x^3}\right)$

$= \frac{d}{dx}(x^{-3})$

$= -3x^{-4}$

$= \frac{-3}{x^4}$

3. $f(x) = 5 + \frac{7}{x} + \frac{5}{x^2}$. Find $f'(x)$

Soln $\frac{d}{dx}(5) + \frac{d}{dx}\left(\frac{7}{x}\right) + \frac{d}{dx}\left(\frac{5}{x^2}\right)$

$= 0 + \frac{d}{dx}(7x^{-1}) + \frac{d}{dx}(5x^{-2})$

$= 0 + 7\frac{d}{dx}(x^{-1}) + 5\frac{d}{dx}(x^{-2})$

$= -7x^{-2} - 10x^{-3}$

$= \frac{-7}{x^2} - \frac{10}{x^3}$

4. $f(x) = \frac{x^{10}}{16}$. Find $f'(x)$

Sol) $\frac{d}{dx}\left(\frac{x^{10}}{16}\right)$

$= \frac{1}{16}\frac{d}{dx}x^{10}$

$= \frac{10}{16}x^{9}$

$= \frac{5}{8}x^{9}$

5. $f(x) = -\sqrt{14}$. Find $f'(x)$

Soll $\frac{d}{dx}(-\sqrt{14})$

$= 0$

6. $f(x) = 6x^4\sqrt{x} + \frac{-2}{x^3\sqrt{x}}$. Find $f'(x)$

Soll $f(x) = 6x^4 x^{\frac{1}{2}} + \frac{-2}{x^3 x^{\frac{1}{2}}}$

$= 6x^{\frac{9}{2}} + \frac{-2}{x^{\frac{7}{2}}}$

$= 6x^{\frac{9}{2}} - 2x^{-\frac{7}{2}}$

$f'(x) = 6\left(\frac{9}{2}\right)x^{\frac{9}{2}-1} - 2\left(-\frac{7}{2}\right)x^{-\frac{7}{2}-1}$

$= 27x^{\frac{7}{2}} + 7x^{-\frac{9}{2}}$

1. $f(x) = (6x^2 - 6)(7x + 5)$. Find $f'(x)$

Soln $f(x) = 42x^3 + 30x^2 - 42x - 30$

$f'(x) = 42(3)x^2 + 30(2)x - 42$

$= 126x^2 + 60x - 42$

8. $f(x) = 9x^2 - 5x$. Find $f'(x)$

Sol) $f'(x) = 18x - 5$

- Slope at $x=2$

  $f'(2) = 31$

- Slope at $x=3$

  $f'(3) = 49$

- Tangent line at $x=2$

  when $x=2$, $y = f(2)$

  $f(2) = 9(4) - 10$

  $= 26$

  $\Rightarrow (y-26) = 31(x-2)$

  $\Rightarrow y = 31x - 36$

- Tangent line at $x=3$

  $y = f(3)$.

  $f(3) = 9(9) - 15$

  $= 66$

  $\Rightarrow (y-66) = 49(x-3)$

  $\Rightarrow y = 49x - 81$

- List all values where tangent line is horizontal.

  $18x - 5 = 0$

  $\Rightarrow 18x = 5$

  $x = 5/18$

1. (1 point) If $f(x) = 2x+9$, find $f'(x)$.

_____

Answer(s) submitted:

- 2

(correct)

2. (1 point) Find $f'(x)$ for $f(x) = \dfrac{1}{x^3}$.
$f'(x)$ = _____

Answer(s) submitted:

- -3/x^4

(correct)

3. (1 point) If $f(x) = 5 + \dfrac{7}{x} + \dfrac{5}{x^2}$, find $f'(x)$.

_____

Find $f'(1)$.

_____

Answer(s) submitted:

- -7/x^2-10/x^3
- -17

(correct)

4. (1 point) Find $f'(x)$ for $f(x) = \dfrac{x^{10}}{16}$.
$f'(x)$ = _____

Answer(s) submitted:

- 5/8(x^9)

(correct)

5. (1 point) Let $f(x) = -\sqrt{14}$. Find $f'(x)$.
$f'(x)$ = _____

Answer(s) submitted:

- 0

(correct)

6. (1 point)

Find the derivative of

$$f(x) = 6x^4\sqrt{x} + \frac{-2}{x^3\sqrt{x}}$$

$f'(x)$ = _____

Answer(s) submitted:

- 27(x^(7/2))+7(x^-(9/2))

(correct)

7. (1 point) If $f(x) = (6x^2-6)(7x+5)$, find $f'(x)$.

_____

Answer(s) submitted:

- 126x^2+60x-42

(correct)

8. (1 point) Suppose that $f(x) = 9x^2 - 5x$. Find:

(A) $f'(x)$ = _____

(B) The slope of the graph of $f(x)$ at $x = 2$ and $x = 3$.
Slope at x = 2: _____
Slope at x = 3: _____

(C) An equation for the tangent lines at $x = 2$ and $x = 3$.
Tangent line at x = 2: y = _____
Tangent line at x = 3: y = _____

(D) List all values of x where the tangent line is horizontal. (Hint: a line is horizontal when its slope is 0.)
Value(s) of x = _____

Answer(s) submitted:

- 18x-5
- 31
- 49
- 31x-36
- 49x-81
- 5/18

(correct)

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