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QUESTION 1



Select the correct option.

What is the derivative of

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

?



$$f'(x) = 12x^{\frac{1}{3}} - 4x^{\frac{1}{2}}$$



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



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



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

QUESTION 2



Select the correct option.

What is the derivative of

$$f(x) = 9x^{\frac{1}{3}} + 10x^{-\frac{3}{5}}$$

?

☒ $f'(x) = 3x^{-\frac{2}{3}} - 6x^{-\frac{8}{5}}$ ✓

☐ $f'(x) = 3x^{-\frac{1}{3}} - 6x^{-\frac{2}{5}}$

☐ $f'(x) = 9x^{-\frac{2}{3}} + 10x^{-\frac{8}{5}}$

☐ $f'(x) = 3x^{\frac{2}{3}} - 6x^{\frac{2}{5}}$

QUESTION 3



Select the correct option.

What is the derivative of

$$f(x) = 5x^{\frac{2}{5}} - 12x^{-\frac{3}{4}}$$

?



$$f'(x) = 2x^{-\frac{7}{5}} - 9x^{-\frac{7}{4}}$$



$$f'(x) = 2x^{-\frac{3}{5}} + 9x^{-\frac{1}{4}}$$



$$f'(x) = 2x^{-\frac{3}{5}} + 9x^{-\frac{7}{4}}$$



$$f'(x) = 5x^{-\frac{3}{5}} + 12x^{-\frac{7}{4}}$$

QUESTION 4



Choose the correct answer from the drop-down menu.

Find the derivative of

$$f(x) = \frac{x^6 - 5x^3}{2x^2}$$

$$f'(x) =$$

$$2x^3 - \frac{5}{2}$$



QUESTION 5



Choose the correct answer from the drop-down menu.

Find the derivative of

$$f(x) = x^5$$

.

$$f'(x) =$$

$$5x^4$$



QUESTION 6



Choose the correct answer from the drop-down menu.

Find the derivative of

$$f(x) = x^3$$

.

$$f'(x) =$$

$$3x^2$$



QUESTION 7



Choose the correct answer from the drop-down menu.

Find the derivative of

$$f(x) = \frac{8x^5 + 4}{x^2}$$

$$f'(x) =$$

$$24x^2 - \frac{8}{x^3} \quad \checkmark \quad \blacktriangledown$$

QUESTION 8



Choose the correct answer from the drop-down menu.

Find the derivative of

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

$$f'(x) =$$

$$-\frac{12}{x^3} - \frac{9}{x^4} \quad \checkmark \quad \blacktriangledown$$

QUESTION 9



Fill in the blank with the correct answer.

Find the derivative of

$$f(x) = 7x^2$$

.

Use the lowercase letters only.

$$f'(x) =$$



QUESTION 10



Fill in the blank with the correct answer.

Find the derivative of

$$f(x) = 9.25x$$

.

$$f'(x) =$$



QUESTION 11



Drag and drop the correct answers into the spaces provided.

Find the derivative of

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

$$f'(x) = \frac{d}{dx}(2x^3 + 4\sqrt{x})$$

=

$$\frac{d}{dx}(2x^3) + \frac{d}{dx}(4\sqrt{x}) \checkmark$$

=

$$2 \frac{d}{dx}(x^3) + 4 \frac{d}{dx}(\sqrt{x}) \checkmark$$

=

$$2 \frac{d}{dx}(x^3) + 4 \frac{d}{dx}\left(x^{\frac{1}{2}}\right) \checkmark$$

=

$$2(3x^2) + 4\left(\frac{1}{2}x^{-\frac{1}{2}}\right) \checkmark$$

=

$$6x^2 + 2x^{-\frac{1}{2}} \checkmark$$

$$2x^2 + 4x^{-\frac{1}{2}}$$

$$6x^2 + 4x^{\frac{1}{2}}$$

$$6x^2 + 2x^{\frac{1}{2}}$$

QUESTION 12



Drag and drop the correct answers into the spaces provided.

Find the derivative of

$$f(x) = 7x^5 - 9\sqrt[3]{x}$$

$$f'(x) = \frac{d}{dx}(7x^5 - 9\sqrt[3]{x})$$

=

$$\frac{d}{dx}(7x^5) - \frac{d}{dx}(9\sqrt[3]{x}) \checkmark$$

=

$$7 \frac{d}{dx}(x^5) - 9 \frac{d}{dx}(\sqrt[3]{x}) \checkmark$$

=

$$7 \frac{d}{dx}(x^5) - 9 \frac{d}{dx}\left(x^{\frac{1}{3}}\right) \checkmark$$

=

$$7(5x^4) - 9\left(\frac{1}{3}x^{-\frac{2}{3}}\right) \checkmark$$

=

$$35x^4 - 3x^{-\frac{2}{3}} \quad \checkmark$$

QUESTION 13



Drag and drop the correct answers into the space(s) provided.

Find the derivative of

$$f(x) = 5x^6$$

and

$$g(x) = 6x^5$$

.

$$\frac{d}{dx}(5x^6) =$$

$$30x^5 \quad \checkmark$$

$$\frac{d}{dx}(6x^5) =$$

$$30x^4 \quad \checkmark$$

$$5x^5$$

$$6x^6$$

$$30x^6$$

$$5x^4$$

$$6x^5$$

QUESTION 14



Drag and drop the correct answers into the spaces provided.

Find the derivative of

$$f(x) = 5\sqrt{x} - 6x^4$$

.

$$f'(x) = \frac{d}{dx}(5\sqrt{x} - 6x^4)$$

=

$$\frac{d}{dx}(5\sqrt{x}) - \frac{d}{dx}(6x^4) \checkmark$$

=

$$5 \frac{d}{dx}(\sqrt{x}) - 6 \frac{d}{dx}(x^4) \checkmark$$

=

$$5 \frac{d}{dx}\left(x^{\frac{1}{2}}\right) - 6 \frac{d}{dx}(x^4) \checkmark$$

=

$$5\left(\frac{1}{2}x^{-\frac{1}{2}}\right) - 6(4x^3) \checkmark$$

=

$$\frac{5}{2}x^{-\frac{1}{2}} - 24x^3 \quad \checkmark$$

$$\frac{5}{2}x^{\frac{1}{2}} + 24x^3$$

$$5x^{\frac{1}{2}} + 6x^3$$

$$\frac{1}{2}x^{-\frac{1}{2}} + 4x^3$$

QUESTION 15



Drag and drop the correct answer into the space(s) provided.

Find the derivatives of

$$f(x) = 2x^4$$

and

$$g(x) = 4x^2$$

.

$$\frac{d}{dx}(2x^4) =$$

$$8x^3 \quad \checkmark$$

$$\frac{d}{dx}(4x^2) =$$

$$8x \quad \checkmark$$

$8x^2$

$2x$

$4x^3$

$8x^4$