



View hints



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QUESTION 1

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

Find

$f'(x)$

for the function

$f(x) = (2x^6 - 5x^3)(3x^4 + 7x^2)$

$f'(x) =$

$$\frac{d[(2x^6 - 5x^3)(3x^4 + 7x^2)]}{dx}$$

=

$(12x^5 - 15x^2)(3x^4 + 7x^2) +$ ✓

$(12x^3 + 14x)(2x^6 - 5x^3)$ ✓

=

$36x^9 + 84x^7 - 45x^6 - 105x^4 +$ ✓

$24x^9 - 60x^6 + 28x^7 - 70x^4$ ✓

=

$60x^9 + 112x^7 - 105x^6 - 175x^4$ ✓

$60x^9 + 112x^7 - 105x^5 - 175x^5$

$60x^9 + 112x^7 -$

$105x^6 - 175x^4$

$(-15x^7 - 35x^5)$

$$\frac{d}{dx} [(6x^{10} + 14x^8) +$$

QUESTION 2



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

Find the equation of the tangent to

$$h(x) = (7x^5 + 8x^3 - 5x^2)(9x^6 - 7x^3 - 4x^2)$$

at

$$x = 1$$

.

$$h'(x) =$$

$$(35x^4 + 24x^2 - 10x) \checkmark$$

$$(9x^6 - 7x^3 - 4x^2)$$

+

$$(54x^5 - 21x^2 - 8x) \checkmark$$

$$(7x^5 + 8x^3 - 5x^2)$$

$$h'(1) =$$

$$152 \checkmark$$

$$y =$$

$$152(x - 1) - 20 \checkmark$$

$$35x^5 + 24x^3 - 10x^2$$

$$7x^4 + 8x^2 - 5x$$

$$104$$

$$-40(x-1) - 20$$

$$-40$$

$$104(x-1) - 20$$

$$54x^6 - 21x^3 - 8x$$

$$440$$

$$440(x-1) - 20$$

$$9x^5 - 7x^2 - 4x$$

QUESTION 3



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

Find the equation of the tangent to

$$h(x) = (9x^4 - 2x^2 + 7x)(5x^3 + 4x^2 - 8x)$$

at

$$x = 1$$

.

$$h'(x) =$$

$$(36x^3 - 4x + 7) \checkmark$$

$$(5x^3 + 4x^2 - 8x)$$

+

$$(15x^2 + 8x - 8) \checkmark$$

$$(9x^4 - 2x^2 + 7x)$$

$$h'(1) =$$



$$y =$$



$$106(x - 1) + 14$$

$$5x^3 + 8x - 8x$$

$$5x^2 + 4x - 8$$

$$9x^3 - 2x + 7$$

$$561(x - 1) + 14$$

$$28(x - 1) + 14$$

$$36x^4 - 4x^2 + 7x$$

QUESTION 4



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

Find the equation of the tangent to

$$h(x) = (4x^6 - 6x^3 + 3x)(7x^5 - 6x^4 + 2x)$$

at

$$x = -1$$

.

$$h'(x) =$$



$$(7x^5 - 6x^4 + 2x)$$

+

$$(35x^4 - 24x^3 + 2)$$
 ✓

$$(4x^6 - 6x^3 + 3x)$$

$$h'(-1) =$$

$$1012$$
 ✓

$$y =$$

$$1012(x + 1) - 105$$
 ✓

$$915(x - 1) - 105$$

$$35x^5 - 24x^4 + 2x - 61$$

$$427$$

$$4x^5 - 6x^2 + 3$$

$$-274$$

$$-274(x - 1) - 105$$

$$7x^4 - 6x^3 + 2$$

$$915$$

$$24x^6 - 18x^3 + 3x$$

$$427(x - 1) - 105$$

QUESTION 5



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

Find

$$f'(x)$$

for the function

$$f(x) = (3x^7 + 4x^5)(2x^4 + 8x^3)$$

.

$$f'(x) =$$

$$\frac{d[(3x^7 + 4x^5)(2x^4 + 8x^3)]}{dx}$$

=

$$(21x^6 + 20x^4)(2x^4 + 8x^3) \checkmark + (8x^3 + 24x^2)(3x^7 + 4x^5) \checkmark$$

=

$$42x^{10} + 168x^9 + 40x^8 + 160x^7 \checkmark +$$

$$24x^{10} + 32x^8 + 72x^9 + 96x^7 \checkmark$$

=

$$66x^{10} + 240x^9 + 72x^8 + 256x^7 \checkmark$$

$$(8x^9 + 32x^8)$$

$$(66x^{10} + 24x^9)$$

$$[(6x^{11} + 24x^{10})$$

$$66x^{10} + 24x^9 + 72x^8 + 256x^7$$

$$(72x^8 + 256x^7)$$

QUESTION 6



Fill in the blank(s) with the correct answer.

Find the equation of the tangent to

$$h(x) = \left(8x^5 + 6x^2 - 4x^{\frac{1}{2}}\right)\left(6x^4 + 2x^3 - 10x^{\frac{3}{2}}\right)$$

at

$$x = 1$$

.

$$y =$$



$$(x -$$



$$) -$$



QUESTION 7



Fill in the blank(s) with the correct answer.

Find the equation of the tangent to

$$h(x) = \left(4x^4 - 2x^3 + 12x^{\frac{1}{4}}\right)\left(8x^5 - 10x + 4x^{\frac{1}{2}}\right)$$

at

$$x = 1$$

.

$$y =$$



$$(x -$$

1



)+

28



QUESTION 8

*Fill in the blank(s) with the correct answer.*

Find the equation of the tangent to

$$h(x) = \left(6x^6 + 4x^3 - 8x^{\frac{3}{4}}\right)\left(2x^5 + 3x^2 - 2x^{\frac{1}{2}}\right)$$

at

$$x = 1$$

.

$$y =$$

156



(x -

1



)+

6



QUESTION 9



Choose the correct answer from the drop-down menu.

Find the equation of the tangent to

$$h(x) = \left(5x^7 - 6x^4 + \frac{3}{x^2}\right) \left(8x^4 - 9x^3 + \frac{15}{x}\right)$$

at

$$x = 1$$

.

$$h'(1) =$$

50



$y =$

$50(x - 1) + 28$



QUESTION 10



Choose the correct answer from the drop-down menu.

Find the equation of the tangent to

$$h(x) = \left(6x^5 + 2x^3 - \frac{4}{x}\right) \left(5x^6 + 8x - \frac{10}{x^2}\right)$$

at

$$x = -1$$

.

$$h'(-1) =$$

- 352



$y =$

$$-352(x+1)+52 \quad \checkmark \quad \blacktriangledown$$

QUESTION 11



Choose the correct answer from the drop-down menu.

Find the equation of the tangent to

$$h(x) = \left(4x^6 + x^4 - \frac{12}{x^2}\right) \left(4x^3 - 9x^2 + \frac{6}{x}\right)$$

at

$$x = 1$$

.

$$h'(1) =$$

$$136 \quad \checkmark \quad \blacktriangledown$$

$$y =$$

$$136(x-1) - 7 \quad \checkmark \quad \blacktriangledown$$

QUESTION 12



Choose the correct answer from the drop-down menu.

Find

$$h'(x)$$

for the function

$$h(x) = \left(2x^6 - \frac{5}{x}\right)\left(3x^4 + \frac{6}{x^2}\right)$$

.

$$h'(x) =$$

$$(12x^5 + 5x^{-2})(3x^4 + 6x^{-2}) \quad \checkmark \quad \blacktriangledown$$

+

$$(12x^3 - 12x^{-3})(2x^6 - 5x^{-1}) \quad \checkmark \quad \blacktriangledown$$

=

$$60x^9 + 48x^3 - 45x^2 + \frac{90}{x^4} \quad \checkmark \quad \blacktriangledown$$

QUESTION 13



Choose the correct answer from the drop-down menu.

Find

$$h'(x)$$

for the function

$$h(x) = \left(x^5 + \frac{4}{x}\right)\left(2x^3 - \frac{3}{x^2}\right)$$

.

$$h'(x) =$$

$$(5x^4 - 4x^{-2})(2x^3 - 3x^{-2}) \quad \checkmark \quad \blacktriangledown$$

+

$$(6x^2 + 6x^{-3})(x^5 + 4x^{-1}) \quad \checkmark \quad \blacktriangledown$$

=

$$16x^7 - 9x^2 + 16x + \frac{36}{x^4} \quad \checkmark \quad \blacktriangledown$$

QUESTION 14



Select the correct option.

What is the derivative of this function?

$$h(x) = 4x^6 \left(3x + 2x^{\frac{1}{2}} \right)$$

☐ $h'(x) = 12x^7 + 8x^3$

☐ $h'(x) = 84x^6 + 24x^2$

☐ $h'(x) = 72x^5 + 24x^{\frac{9}{2}}$

$$h'(x) = 84x^6 + 52x^{\frac{11}{2}}$$



QUESTION 15



Select the correct option.

What is the derivative of this function?

$$h(x) = 8x^4 \left(x^{\frac{3}{2}} + 2x \right)$$

$$h'(x) = 80x^4 + 44x^{\frac{9}{2}}$$



☐ $h'(x) = 64x^3 + 48x^{\frac{3}{2}}$

☐ $h'(x) = 48x^5 + 80x^4$

☐ $h'(x) = 80x^4 + 32x^{\frac{9}{2}} + 12x^2$