Topic: Power rule

Question: Find the derivative.

$$y = -3x^3$$

Answer choices:

A $y' = -9x^4$

B $y' = 9x^2$

C $y' = -9x^2$

D $y' = -6x^2$

Solution: C

Apply power rule to differentiate the equation.

$$y' = -3(3)x^{3-1}$$

$$y' = -9x^2$$

Topic: Power rule

Question: Find the derivative.

$$y = 5x^5 - 4x^2$$

Answer choices:

A $y' = 5x^4 - 4x$

B $y' = 25x^4 - 8x$

C $y' = 25x^5 - 8x^2$

D $y' = 25x^3 - 8$

Solution: B

Apply power rule to differentiate the equation, one term at a time.

$$y' = 5(5)x^{5-1} - 4(2)x^{2-1}$$

$$y' = 25x^4 - 8x^1$$

$$y' = 25x^4 - 8x$$

Topic: Power rule

Question: Find the derivative.

$$y = 3x^7 - 9x^2 + 21$$

Answer choices:

A $y' = 21x^{-6} - 18x$

B $y' = 3x(7x^5 - 6x)$

C $y' = 21x^8 - 18x^2$

D $y' = 21x^6 - 18x$

Solution: D

Apply power rule to differentiate the equation, one term at a time.

$$y' = 3(7)x^{7-1} - 9(2)x^{2-1} + 0$$

$$y' = 21x^6 - 18x^1$$

$$y' = 21x^6 - 18x$$