Name

Derivative Rules - Quotient Rule Positive Fractional Powers (with Rule) to Derivative

1

Find the derivative f'(x) using the quotient rule.

if $h(x)=\frac{f(x)}{g(x)}$, $h'(x)=\frac{f'(x)g(x)-f(x)g'(x)}{[g(x)]^2}$

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

A $f'(x)=\frac{(\frac{15}{2}x^{\frac{1}{2}})(3x)+(5x^{\frac{3}{2}}-3)(3)}{(3x)^2}$

B $f'(x)=\frac{(\frac{15}{2}x^{\frac{1}{2}})(3x)-(5x^{\frac{3}{2}}-3)(3)}{(3x)^2}$

C $f'(x)=\frac{(\frac{15}{2}x^{\frac{1}{2}})(3x)-(5x^{\frac{3}{2}}-3)(3)}{(3x)}$

D $f'(x)=\frac{(5x^{\frac{3}{2}}-3)(3)-(\frac{15}{2}x^{\frac{1}{2}})(3x)}{(3x)^2}$

2

Find the derivative f'(x) using the quotient rule.

if $h(x)=\frac{f(x)}{g(x)}$, $h'(x)=\frac{f'(x)g(x)-f(x)g'(x)}{[g(x)]^2}$

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

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

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

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

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

3

Find the derivative f'(x) using the quotient rule.

if $h(x)=\frac{f(x)}{g(x)}$, $h'(x)=\frac{f'(x)g(x)-f(x)g'(x)}{[g(x)]^2}$

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

A $f'(x)=\frac{(-\frac{9}{2}x^{\frac{1}{2}})(5x^2-5)-(-3x^{\frac{3}{2}}+5)(10x)}{(5x^2-5)}$

B $f'(x)=\frac{(-\frac{9}{2}x^{\frac{1}{2}})(5x^2-5)+(-3x^{\frac{3}{2}}+5)(10x)}{(5x^2-5)^2}$

C $f'(x)=\frac{(-\frac{9}{2}x^{\frac{1}{2}})(5x^2-5)-(-3x^{\frac{3}{2}}+5)(10x)}{(5x^2-5)^2}$

D $f'(x)=\frac{(-3x^{\frac{3}{2}}+5)(10x)-(-\frac{9}{2}x^{\frac{1}{2}})(5x^2-5)}{(5x^2-5)^2}$

4

Find the derivative f'(x) using the quotient rule.

if $h(x)=\frac{f(x)}{g(x)}$, $h'(x)=\frac{f'(x)g(x)-f(x)g'(x)}{[g(x)]^2}$

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

A $f'(x)=\frac{(2x^{-\frac{1}{2}})(3x^2-5)-(4x^{\frac{1}{2}}-3)(6x)}{(3x^2-5)}$

B $f'(x)=\frac{(2x^{-\frac{1}{2}})(3x^2-5)+(4x^{\frac{1}{2}}-3)(6x)}{(3x^2-5)^2}$

C $f'(x)=\frac{(2x^{-\frac{1}{2}})(3x^2-5)-(4x^{\frac{1}{2}}-3)(6x)}{(3x^2-5)^2}$

D $f'(x)=\frac{(4x^{\frac{1}{2}}-3)(6x)-(2x^{-\frac{1}{2}})(3x^2-5)}{(3x^2-5)^2}$

5

Find the derivative f'(x) using the quotient rule.

if $h(x)=\frac{f(x)}{g(x)}$, $h'(x)=\frac{f'(x)g(x)-f(x)g'(x)}{[g(x)]^2}$

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

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

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

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

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

6

Find the derivative f'(x) using the quotient rule.

if $h(x)=\frac{f(x)}{g(x)}$, $h'(x)=\frac{f'(x)g(x)-f(x)g'(x)}{[g(x)]^2}$

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

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

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

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

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

7

Find the derivative f'(x) using the quotient rule.

if $h(x)=\frac{f(x)}{g(x)}$, $h'(x)=\frac{f'(x)g(x)-f(x)g'(x)}{[g(x)]^2}$

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

A $f'(x)=\frac{(2x^{-\frac{1}{2}})(5x^2)-(4x^{\frac{1}{2}}-4)(10x)}{(5x^2)^2}$

B $f'(x)=\frac{(2x^{-\frac{1}{2}})(5x^2)-(4x^{\frac{1}{2}}-4)(10x)}{(5x^2)}$

C $f'(x)=\frac{(4x^{\frac{1}{2}}-4)(10x)-(2x^{-\frac{1}{2}})(5x^2)}{(5x^2)^2}$

D $f'(x)=\frac{(2x^{-\frac{1}{2}})(5x^2)+(4x^{\frac{1}{2}}-4)(10x)}{(5x^2)^2}$

8

Find the derivative f'(x) using the quotient rule.

if $h(x)=\frac{f(x)}{g(x)}$, $h'(x)=\frac{f'(x)g(x)-f(x)g'(x)}{[g(x)]^2}$

$f(x)=\frac{4x^{\frac{1}{3}}-7}{3x+3}$

A $f'(x)=\frac{(\frac{4}{3}x^{-\frac{2}{3}})(3x+3)-(4x^{\frac{1}{3}}-7)(3)}{(3x+3)}$

B $f'(x)=\frac{(\frac{4}{3}x^{-\frac{2}{3}})(3x+3)+(4x^{\frac{1}{3}}-7)(3)}{(3x+3)^2}$

C $f'(x)=\frac{(\frac{4}{3}x^{-\frac{2}{3}})(3x+3)-(4x^{\frac{1}{3}}-7)(3)}{(3x+3)^2}$

D $f'(x)=\frac{(4x^{\frac{1}{3}}-7)(3)-(\frac{4}{3}x^{-\frac{2}{3}})(3x+3)}{(3x+3)^2}$