

**Differentiate power functions****1**Find the derivative $f'(x)$.

if $f(x) = c$, $f'(x) = 0$

$[12pt] f(x) = \frac{9}{2}$

A $f'(x) = \frac{9}{2}x$

B $f'(x) = 1$

C $f'(x) = 0$

D $f'(x) = \frac{9}{2}$

2Find the derivative $f'(x)$.

$f(x) = \frac{3}{8}$

A $f'(x) = \frac{3}{8}$

B $f'(x) = 0$

C $f'(x) = 1$

D $f'(x) = \frac{3}{8}x$

3Find the derivative $f'(x)$ using the power rule.

if $f(x) = x^n$, $f'(x) = nx^{n-1}$

$[12pt] f(x) = x^4$

A $f'(x) = 4x^5$

B $f'(x) = 4x^4$

C $f'(x) = 4x^3$

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

4Find the derivative $f'(x)$ using the power rule.

if $f(x) = ax^n$, $f'(x) = anx^{n-1}$

$[12pt] f(x) = -2x^4$

A $f'(x) = -8x^3$

B $f'(x) = -8x^5$

C $f'(x) = -8x^4$

D $f'(x) = -2x^3$

5Find the derivative $f'(x)$ using the power rule.

if $f(x) = x^n$, $f'(x) = nx^{n-1}$

$[12pt] f(x) = x^{\frac{5}{3}}$

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

B $f'(x) = \frac{5}{3}x^{\frac{5}{3}}$

C $f'(x) = x^{\frac{2}{3}}$

D $f'(x) = \frac{5}{3}x^{\frac{8}{3}}$

6Find the derivative $f'(x)$ using the power rule.

if $f(x) = ax^n$, $f'(x) = anx^{n-1}$

$[12pt] f(x) = 9x^{\frac{3}{2}}$

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

B $f'(x) = \frac{27}{2}x^{\frac{1}{2}}$

C $f'(x) = \frac{27}{2}x^{\frac{3}{2}}$

D $f'(x) = \frac{27}{2}x^{\frac{5}{2}}$

**Differentiate power functions****7**Find the derivative $f'(x)$ using the power rule.

if $f(x) = x^n$, $f'(x) = n x^{n-1}$

[12pt] $f(x) = x^{-3}$

A

$$f'(x) = -3x^{-4}$$

B

$$f'(x) = -3x^{-3}$$

C

$$f'(x) = x^{-4}$$

D

$$f'(x) = -3x^{-2}$$

8Find the derivative $f'(x)$ using the power rule.

if $f(x) = a x^n$, $f'(x) = a n x^{n-1}$

[12pt] $f(x) = -3x^{-1}$

A

$$f'(x) = 3$$

B

$$f'(x) = -3x^{-2}$$

C

$$f'(x) = 3x^{-2}$$

D

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

9Find the derivative $f'(x)$ using the power rule.

if $f(x) = x^n$, $f'(x) = n x^{n-1}$

[12pt] $f(x) = x^{-\frac{5}{2}}$

A

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

B

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

C

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

D

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

11Find the derivative $f'(x)$ using the power rule.

$$f(x) = x^{\frac{1}{3}}$$

A

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

B

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

C

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

D

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

10Find the derivative $f'(x)$ using the power rule.

if $f(x) = a x^n$, $f'(x) = a n x^{n-1}$

[12pt] $f(x) = 6x^{-\frac{1}{2}}$

A

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

B

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

C

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

D

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



Differentiate power functions

12Find the derivative $f'(x)$ using the power rule.

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

A	$f'(x) = 5x^6$
B	$f'(x) = 5x^4$
C	$f'(x) = 5x^5$
D	$f'(x) = x^4$

13Find the derivative $f'(x)$ using the power rule.

$$f(x) = x^{-4}$$

A	$f'(x) = -4x^{-5}$
B	$f'(x) = -4x^{-4}$
C	$f'(x) = x^{-5}$
D	$f'(x) = -4x^{-3}$

14Find the derivative $f'(x)$ using the power rule.

$$f(x) = -8x^4$$

A	$f'(x) = -32x^3$
B	$f'(x) = -32x^5$
C	$f'(x) = -8x^3$
D	$f'(x) = -32x^4$

15Find the derivative $f'(x)$ using the power rule.

$$f(x) = 9x^{-3}$$

A	$f'(x) = -27x^{-3}$
B	$f'(x) = -27x^{-4}$
C	$f'(x) = -27x^{-2}$
D	$f'(x) = 9x^{-4}$

**Differentiate power functions****16**Find the derivative $f'(x)$ using the power rule.

$$f(x) = \frac{8}{x^3}$$

A

$$f'(x) = 8x^{-4}$$

B

$$f'(x) = -24x^{-3}$$

C

$$f'(x) = -24x^{-2}$$

D

$$f'(x) = -24x^{-4}$$

17Find the derivative $f'(x)$ using the power rule.

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

A

$$f'(x) = -5x^{-5}$$

B

$$f'(x) = x^{-6}$$

C

$$f'(x) = -5x^{-6}$$

D

$$f'(x) = -5x^{-4}$$

18Find the derivative $f'(x)$ using the power rule.

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

A

$$f'(x) = -\frac{10}{3}x^{-\frac{5}{3}}$$

B

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

C

$$f'(x) = -\frac{10}{3}x^{-\frac{2}{3}}$$

D

$$f'(x) = -\frac{10}{3}x^{\frac{1}{3}}$$

19Find the derivative $f'(x)$ using the power rule.

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

A

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

B

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

C

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

D

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

20Find the derivative $f'(x)$ using the power rule.

$$\text{if } f(x) = ax^n, \quad f'(x) = anx^{n-1}$$

$$[12pt]f(x) = 3\sqrt[3]{x^5}$$

A

$$f'(x) = 5x^{\frac{8}{3}}$$

B

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

C

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

D

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