

Practicing the chain rule

5/5 points (100%)

Practice Quiz, 5 questions

✓ Congratulations! You passed![Next Item](#)1 / 1
points

1.

In the following quiz, you will practice how to use the chain rule. Some questions look tricky, but just stick to the rules you know!

If $f(x) = g(h(x))$, what is the differential of f with respect to x , in terms of g and h ?

- ☐ $f'(x) = g'(h'(x))$
- ☐ $f'(x) = g'(h'(x))h'(x)$
- ☐ $f'(x) = g'(h(x))$
- ☒ $f'(x) = g'(h(x))h'(x)$

Correct

This is the chain rule.

1 / 1
points

2.

Differentiate with respect to x the function

$$f(x) = \sqrt{x^3 - 2x} = (x^3 - 2x)^{1/2}.$$

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

Correct

This is the chain rule.

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

☐ $f'(x) = \sqrt{3x^2 - 2}$

1 / 1
points

3.

Differentiate with respect to x the function $f(x) = e^{x^3 - 3}$.

☒ $f'(x) = 3x^2 e^{x^3 - 3}$

**Correct**

This is the chain rule!

☐ $f'(x) = e^{3x^2}$

☐ $f'(x) = (x^3 - 3)e^{3x^2}$

☐ $f'(x) = (x^3 - 3)e^{x^3 - 3}$

1 / 1
points

4.

Differentiate with respect to x the function $f(x) = \sqrt{e^{x+2}}$.

☒ $f'(x) = \frac{\sqrt{e^{x+2}}}{2}$

**Correct**

This is the chain rule applied twice.

☐ $f'(x) = \sqrt{e^{x+2}}$

☐ $f'(x) = \frac{1}{2e^{x+2}}$



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

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1 / 1
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5.

If $f(t) = f(y(x(t)))$, what is the differential of f with respect to t , in terms of f , y , x and t ?

☐ $f'(t) = f'(y'(x'(t))) \cdot y'(x'(t)) \cdot x'(t)$

☐ $f'(t) = f'(y(x(t))) \cdot y'(x(t))$

☐ $f'(t) = f'(y'(x'(t)))$

☒ $f'(t) = f'(y(x(t))) \cdot y'(x(t)) \cdot x'(t)$

**Correct**

This is the chain rule applied twice.

