Data Science Math Skills

Here's the complete list of exercises you need to deliver:

Week 3

* This is about that derivative stuff - Practice quiz on Tangent Lines to Functions (2 questions)

* Fast Growth, Slow Growth - Practice quiz on Exponents and Logarithms (12 questions)

* Fast Growth, Slow Growth - Graded quiz on Tangent Lines to Functions, Exponents and Logarithms (13 questions)

This is about that derivative stuff

www.coursera.org/learn/datasciencemathskills/quiz/dhCg7/practice-quiz-ontangent-lines-to-functions/attempt

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← **Practice quiz onTangent Lines to Functions**
Teste para praticar • 10 min

Practice quiz onTangent Lines to Functions

NÚMERO TOTAL DE PONTOS 2

1. Suppose that $f : \mathbb{R} \to \mathbb{R}$ is a function. Which of the following expressions corresponds to $f'(2)$, the slope [1 ponto] of the tangent line to the graph of $f(x)$ at $x = 2$?

   ○ $f'(2) = 2$

   ⦿ $f'(2) = \lim_{h \to 0} \frac{f(2+h)-f(2)}{h}$

   ○ $f'(2) = \lim_{h \to 0} \frac{f(a+h)-f(a)}{h}$

   ○ $f'(2) = mx + b$

2. Suppose that $h : \mathbb{R} \to \mathbb{R}$ is a function whose graph is shown as the blue curve in the figure. For how many [1 ponto] values of a is $h'(a) = 0$?

2. Suppose that $h : \mathbb{R} \to \mathbb{R}$ is a function whose graph is shown as the blue curve in the figure. For how many **1 ponto** values of a is $h'(a) = 0$?

- ○ 3
- ○ Never
- ○ Always
- ● 2

☑ Entendo que, ao enviar o trabalho de outra pessoa como se fosse meu, pode resultar em crédito zero para esta tarefa. Violações repetidas do Código de Honra do Coursera podem resultar na remoção deste curso ou na desativação da minha conta do Coursera.

Saiba mais sobre o Código de Honra do Coursera

This is about that derivative stuff

✓ **Leitura:** A note about the video lectures in this lesson
10 min

✓ **Vídeo:** Tangent Lines - Slope of a Graph at a Point
10 min

✓ **Vídeo:** Tangent Lines - The Derivative Function
9 min

✓ **Teste para praticar:** Practice quiz onTangent Lines to Functions
2 perguntas

Fast Growth, Slow Growth

TESTE PARA PRATICAR • 10 MIN

Practice quiz onTangent Lines to Functions

✓ **Envie sua tarefa**   Tentar novamente

✓ **Receber nota**   Nota   Ver feedback

PARA SER APROVADO   75% ou superior   **100%**
                                                        Mantemos sua pontuação mais alta

Fast Growth, Slow Growth

Practice quiz on Exponents and Logarithms

NÚMERO TOTAL DE PONTOS 12

1. Re write the number $784 = 2 \times 2 \times 2 \times 2 \times 7 \times 7$ using exponents.

   `1 ponto`

   ○ $(2 \times 7)^6$

   ○ $(2^6)(7^6)$

   ⦿ $(2^4)(7^2)$

   ○ $(16^4)(49^2)$

2. What is $(x^2 - 5)^0$?

   `1 ponto`

   ○ (x^2)

   ⦿ 1

   ○ -4

   ○ $(x^2) - 5$

3. Simplify $((x-5)^2)^{-3}$

1 ponto

◉ $(x-5)^{-6}$

○ $(x-5)^{-5}$

○ $(x-5)$

○ $(x-5)^{-1}$

4. Simplify $\left(\dfrac{8^2}{8^7}\right)^2$

1 ponto

○ 8^{-4}

○ 8^{-5}

○ 8^{-1}

◉ 8^{-10}

5. $\log 35 = \log 7 + \log x$

1 ponto

Solve for x

- ⦿ 5
- ○ 7
- ○ 28
- ○ 4

6. $\log_2(x^2 + 5x + 7) = 0$

1 ponto

Solve for x

- ○ $x = 3$
- ○ $x = 2$
- ○ $x = 2$ or $x = 3$
- ⦿ $x = -2$ or $x = -3$

7. Simplify $\log_2 72 - \log_2 9$

1 ponto

- ○ $\log_2 4$
- ● 3
- ○ 4
- ○ $\log_2 63$

8. Simplify $\log_3 9 - \log_3 3 + \log_3 5$

1 ponto

- ○ 15
- ○ 8
- ○ $\log_3 8$
- ● $\log_3 15$

9. Simplify $\log_2(3^8 \times 5^7)$

1 ponto

- ○ $56 \times \log_2 15$

9. Simplify $\log_2(3^8 \times 5^7)$

   1 ponto

   ○ $56 \times \log_2 15$

   ○ $(5 \times \log_2 3) + (8 \times \log_2 5)$

   ○ $15 \times \log_2 56$

   ● $(8 \times \log_2 3) + (7 \times \log_2 5)$

10. If $\log_{10} y = 100$, what is $\log_2 y =$?

    1 ponto

    ○ 500

    ○ 20

    ○ 301.03

    ● 332.19

11. A tree is growing taller at a continuous rate. In the past 12 years it has grown from 3 meters to 15 meters. What is its rate of growth per year?

    1 ponto

    ● 13.41%

    ○ 11.41%

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1 ponto

- ● 13.41%
- ○ 11.41%
- ○ 12.41%
- ○ 10.41%

12. Bacteria can reproduce exponentially if not constrained. Assume a colony grows at a continually compounded rate of 400% per day. How many days before a colony with initial mass of 6.25×10^{-10} grams weights 1000 Kilograms?

1 ponto

- ○ 875 days
- ○ 87.5 days
- ● 8.75 days
- ○ 0.875 days

Vídeo: Simplification Rules for Algebra using Exponents
11 min

Vídeo: How Logarithms and Exponents are Related
12 min

Vídeo: The Change of Base Formula
4 min

Vídeo: The Rate of Growth of Continuous Processes
11 min

Teste para praticar: Practice quiz on Exponents and Logarithms
12 perguntas

Teste: Graded quiz on Tangent Lines to Functions, Exponents and Logarithms
13 perguntas

Leitura: Feedback
10 min

TESTE PARA PRATICAR • 40 MIN

Practice quiz on Exponents and Logarithms

✓ **Envie sua tarefa**

Tentar novamente

✓ **Receber nota**

PARA SER APROVADO 75% ou superior

Nota

100%

Mantemos sua pontuação mais alta

Ver feedback

Fast Growth, Slow Growth

1. Convert $\dfrac{1}{49}$ to exponential form, using 7 as the factor.

   1 ponto

   ◯ 49^{-1}

   ◯ $\dfrac{7}{7^3}$

   ◯ (7^2)

   ⦿ 7^{-2}

2. A light-year (the distance light travels in a vacuum in one year) is $9,460$ trillion meters. Express in scientific notation.

   1 ponto

   ◯ 9460×10^{12} meters

   ◯ 0.946×10^{16}

   ◯ 9.46×10^{15} kilometers

   ⦿ 9.46×10^{15} meters.

2. A light-year (the distance light travels in a vacuum in one year) is $9,460$ trillion meters. Express in scientific notation.   1 ponto

   ○ 9460×10^{12} meters

   ○ 0.946×10^{16}

   ○ 9.46×10^{15} kilometers

   ● 9.46×10^{15} meters.

3. Simplify $(x^8)(y^3)(x^{-10})(y^{-2})$ 1 ponto

   ○ $(x^2)(y)$

   ○ $(x)(y^{-2})$

   ○ $(x^{-80})(y^{-6})$

   ● $(x^{-2})(y)$

4. Simplify $\left[(x^4)(y^{-6})\right]^{-1}$

1 ponto

○ $\dfrac{(x^4)}{(y^{-6})}$

○ $(x^3)(y^{-7})$

◉ $(x^{-4})(y^6)$

○ $\dfrac{(x^-4)}{(y^6)}$

5. Solve for x:

1 ponto

$$\log_2(39x) - \log_2(x-5) = 4$$

○ $\dfrac{23}{80}$

○ $\dfrac{39}{23}$

◉ $\dfrac{-80}{23}$

6. Simplify this expression:

1 ponto

$$\left(x^{\frac{1}{2}}\right)^{\frac{-3}{2}}$$

- ⦿ $x^{\frac{-3}{4}}$
- ○ $x^{\frac{1}{3}}$
- ○ x^{-1}
- ○ $x^{\frac{4}{3}}$

7. Simplify $\log_{10} 1000 + \log_{10} \frac{1}{10000}$

1 ponto

- ○ 1
- ○ $\log_{10} -10$
- ○ $\frac{1}{10}$
- ⦿ -1

8. If $\log_3 19 = 2.680$, what is $\log_9 19$?

1 ponto

- ○ 5.216
- ● 1.304
- ○ 0.8934
- ○ 0.4347

9. If $\log_{10} b = 1.8$ and $\log_a b = 2.5752$, what is a?

1 ponto

- ○ 3
- ● 5
- ○ 6
- ○ 4

10. An investment of $1,600$ is worth $7,400$ after 8.5 years. What is the continuously compounded rate of return of this investment?

1 ponto

○ 19.01%

○ 20.01

○ 17.01%

◉ 18.02%

11. A pearl grows in an oyster at a continuously compounded rate of $.24$ per year. If a 25-year old pearl weighs 1 gram, what did it weigh when it began to form?

1 ponto

○ 0.02478

○ 0.2478

○ 0.0002478

◉ 0.002478

12. $\log_2 z = 6.754$. What is $\log_{10}(z)$?

1 ponto

- ◉ 2.03316
- ○ 1.3508
- ○ 0.82956
- ○ 0.49185

13. Suppose that $g : \mathbb{R} \to \mathbb{R}$ is a function, and that $g(1) = 10$. Suppose that $g'(a)$ is negative for every single value of a. Which of the following could possibly be $g(1.5)$?

1 ponto

- ○ $g(1.5) = 11$
- ○ $g(1.5) = 103.4$
- ○ $g(1.5) = 10.1$
- ◉ $g(1.5) = 9.7$

Anterior | Próximo

Vídeo: Simplification Rules for Algebra using Exponents
11 min

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12 min

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4 min

Vídeo: The Rate of Growth of Continuous Processes
11 min

Teste para praticar: Practice quiz on Exponents and Logarithms
12 perguntas

Teste: Graded quiz on Tangent Lines to Functions, Exponents and Logarithms
13 perguntas

Leitura: Feedback
10 min

TESTE • 45 MIN

Graded quiz on Tangent Lines to Functions, Exponents and Logarithms

Envie sua tarefa

DATA DE VENCIMENTO Apr 4, 11:59 PM PDT   **TENTATIVAS** 3 a cada 8 hours

Tentar novamente

Receber nota

PARA SER APROVADO 75% ou superior

Nota

100%

Mantemos sua pontuação mais alta

Ver feedback