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Graded quiz on Tangent Lines to Functions, Exponents and Logarithms

CALIFICACIÓN DEL ÚLTIMO ENVÍO 100%

1.	Convert $\frac{1}{40}$	to exponential form, using 7 as the fa	actor.
	/IU		

1 / 1 puntos

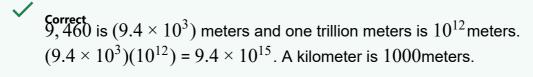


Correct

The rule for a factor to a Negative exponent is to divide by the same factor to a positive exponent with the same absolute value.

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

- $9460 \times 10^{12} \text{ meters}$
- 9.46×10^{15} meters.
- 0.946×10^{16}
- 9.46×10^{15} kilometers



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

1 / 1 puntos

- $\bigcirc (x^2)(y)$
- $\bigcirc (x)(y^{-2})$
- $(x^{-80})(y^{-6})$
- $(x^{-2})(y)$



By the Division and Negative Powers Rule, this is $(x^{(8-10)})(y^{(3-2)})$

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

1 / 1 puntos

- $(x^3)(y^{-7})$
- $\bigcirc \frac{(x^4)}{(y^{-6})}$
- $(x^{-4})(y^6)$
- $\frac{(x^-4)}{(y^6)}$

By the Power to a Power Rule, each of the exponents is multiplied by (-1)

Solve for *x*: 5.

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

Correct

$$\log_2 \frac{39x}{(x-5)} = 4$$
 by the Quotient Rule.

Since both sides are equal, we can use them as exponents in an equation.

$$\log_2 \frac{39x}{(x-5)} = 2^4$$

$$\frac{39x}{(x-5)} = 16$$

$$39x = 16 \times (x - 5)$$

$$39x = 16x - 80$$

$$23x = -80$$

$$x = \frac{-80}{23}$$

Simplify this expression:

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

$$(x^{\frac{4}{3}})$$

$$\mathcal{X}^{\frac{4}{3}}$$

- $\bigcirc \chi^{\frac{1}{3}}$
- $\bigcirc x^{-1}$
- $\bigcirc \chi^{\frac{-3}{4}}$

We use the Power to a Power Rule -- multiply exponents:

$$\chi^{\frac{1}{2} \times \frac{-3}{2}} = \chi^{\frac{-3}{4}}$$

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

1 / 1 puntos

- $\bigcirc \frac{1}{10}$
- \circ \log_{10} -10
- \circ -1
- 0 1

By the Product Rule, this is:

$$\log_{10}(\frac{1000}{10000}) = \log_{10}(\frac{1}{10}) = -1$$

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

- 0.4347
- 0 5.216
- 1.304

0.8934



Correct

To convert from log_3 to log_9 , divide by log_3 9. Which is equal to 2, so the answer is 1.34

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

1 / 1 puntos

- \bigcirc 3



Correct

To solve for a in the formula;

$$\log_a b = \frac{\log_x b}{\log_x a}$$

$$\log_a b = 2.5752$$
 and $\log_{10} b = 1.8$

Therefore, $\log_{10} a$ must equal to

$$\frac{1.8}{2.5752} = 0.69897$$

Treating both sides of equation $log_{10} a = 0.69897$ as exponents of 10 gives $a = 10^{0.69897} = 5$

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

- 18.02%
- 20.01
- ^{19.01%}
- 0 17.01%

$$\frac{\ln \frac{7400}{1600}}{8.5} = 0.18017$$

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?

- 0.02478
- 0.002478
- 0.2478
- 0.0002478

$$e^{(0.24 \times 25)} = \frac{1}{x}$$

$$x = \frac{1}{\left(e^{0.24 \times 25}\right)}$$

$$\chi = \frac{1}{403.4288}$$

$$x = 0.002478$$

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

1 / 1 puntos

- 1.3508
- 0.82956
- 2.03316
- 0.49185

$$\frac{\sqrt{\log_2 z}}{\log_2 10} =$$

$$(\log_{10} z) \times (\log_2 10) = 3.321928$$

Therefore,
$$\log_{10} z = \frac{6.754}{3.321928} = 2.03316$$

- **13.** Suppose that $g: R \to R$ 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 / 1 pun

$$\bigcirc$$
 $g(1.5) = 11$

$$\bigcirc$$
 $g(1.5) = 10.1$

$$Og(1.5) = 103.4$$

$$g(1.5) = 9.7$$

Correct

everywhere on the graph, we know that g is *decreasing* function! And therefore we must have $g(1.5) \le g(1)$. That is the case here, so this value is at least possible.