1. Convert \begin {align}\frac{1}{49}\end {align} to exponential form, using 7 as the factor.

1 / 1 puntos

○ 49^{-1}

○ \begin {align} {\large \frac{7}{7^3}}\end {align}

◉ 7^{-2}

○ (7^2)

✓ **Correcto**
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.

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

1 / 1 puntos

○ 0.946×10^{16}

◉ 9.46×10^{15} meters.

○ 9460×10^{12} meters

○ 9.46×10^{15} kilometers

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

1 / 1 puntos

○ $(x)(y^{-2})$

○ $(x^2)(y)$

○ $(x^{-80})(y^{-6})$

◉ $(x^{-2})(y)$

✓ **Correcto**
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

○ {\large \begin {align} \frac{(x^{-{4})}}{(y^6)}\end {align}}

○ $(x^3)(y^{-7})$

○ {\large \begin {align}\frac{(x^4)}{(y^{-6})}\end {align}}

◉ $(x^{-4})(y^6)$

5. Solve for x:

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

0 / 1 puntos

○ \begin {align}\frac{-80}{23}\end {align}

◉ \begin {align}\frac{80}{38}\end {align}

○ \begin {align}\frac{39}{23}\end {align}

○ \begin {align}\frac{23}{80}\end {align}

6. Simplify this expression:

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

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

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

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

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

- ○ 0.8934
- ○ 5.216
- ◉ 1.304
- ○ 0.4347

✓ **Correcto**

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

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

- ○ 6
- ○ 4
- ◉ 3
- ○ 5

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?

○ 17.01%

○ 19.01%

○ 20.01

◉ 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?

○ 0.02478

◉ 0.002478

○ 0.2478

○ 0.0002478

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

◉ 2.03316

○ 0.49185

○ 0.82956

○ 1.3508

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 $g(1.5)$?

○ $g(1.5) = 103.4$

○ $g(1.5) = 11$

◉ $g(1.5) = 9.7$

○ $g(1.5) = 10.1$