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

- $(16^4)(49^2)$
- $(2 \times 7)^6$
- $(2^6)(7^6)$
- $(2^4)(7^2)$

Correcto
For this type of problem, count the number of times each relevant factor appears in the product. That number is the exponent for that factor.

2. What is $(x^2 - 5)^0$? 1 / 1 puntos

- $(x^2) - 5$
- (x^2)
- -4
- 1

3. Simplify $((x - 5)^2)^{-3}$ 1 / 1 puntos

- $(x - 5)^{-5}$
- $(x - 5)$
- $(x - 5)^{-6}$
- $(x - 5)^{-1}$

Correcto
By Rule 2, "Power to a Power," multiply the exponents and get:

$$(x - 5)^{(2 \times -3)} = (x - 5)^{-6}$$

By the definition of negative exponents, this is equal to \begin {align}\frac{1}{{{x-5}}^{6}}\end {align}

4. Simplify {\large \begin {align}{\frac{8^2}{8^7}}^2\end {align}} 1 / 1 puntos

- 8^{-10}
- 8^{-5}
- 8^{-1}
- 8^{-4}

5. $\log 35 = \log 7 + \log x$ **1 / 1 puntos**

Solve for x

- ○ 28
- ○ 7
- ◉ 5
- ○ 4

✓ **Correcto**

$\log(x) = \log 35 - \log 7$

$\log(x)$ = \log \begin {align}{\frac {35}{7}\end {align})

By the Quotient Rule $\log x = \log 5$

6. $\log_2(x^2 + 5x + 7) = 0$ **1 / 1 puntos**

Solve for x

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

7. Simplify $\log_2 72 - \log_2 9$ **1 / 1 puntos**

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

✓ **Correcto**

By the quotient rule, this is \log_2 \begin {align}{\frac{72}{9}}= \log_2 {2^3}= 3\end {align}

8. Simplify $\log_3 9 - \log_3 3 + \log_3 5$ **1 / 1 puntos**

- ○ $\log_3 8$
- ◉ $\log_3 15$
- ○ 15
- ○ 8

9. Simplify $\log_2(3^8 \times 5^7)$ — 1 / 1 puntos

- ○ $(5 \times \log_2 3) + (8 \times \log_2 5)$
- ○ $15 \times \log_2 56$
- ◉ $(8 \times \log_2 3) + (7 \times \log_2 5)$
- ○ $56 \times \log_2 15$

✓ **Correcto**
We first apply the Product Rule to convert to the sum: $\log_2(3^8) + \log_2(5^7)$. Then apply the power and root rule.

10. If $\log_{10} y = 100$, what is $\log_2 y =?$ — 0 / 1 puntos

- ○ 332.19
- ○ 301.03
- ○ 500
- ◉ 20

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 / 1 puntos

- ◉ 13.41%
- ○ 11.41%
- ○ 12.41%
- ○ 10.41%

✓ **Correcto**
{\large \begin {align}\frac{\ln{\frac{15}{3}}}{12}=0.1341\end {align}}

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 X 10^{-10} grams weights 1000 Kilograms? — 0 / 1 puntos

- ○ 8.75 days
- ○ 875 days
- ○ 0.875 days
- ◉ 87.5 days