exercice 1

$$x^{x^{77}} = 77$$

$$x = ?$$

exercice 2

$$(y - 4)^4 = y^4$$

$$y = ?$$

---------- Q U E S T I O N ----------

x^x^77 = 77

x = ?

(y - 4)⁴ = y⁴

y = ?

---------- R É P O N S E (YT) ----------

----- premier exercice -----
----

x^x^77 = 77

x^x^77^77 = 77^77

rappel: a^m^n = a^(mn) = a^n^m

x^77^x^77 = 77^77

rappel: a^a = b^b => a = b

x^77 = 77

⁷⁷√(x^77) = ⁷⁷√77

x = ⁷⁷√77

| x = ⁷⁷√77 |

----- deuxième exercice -----

(y - 4)⁴ = y⁴

(y - 4)⁴ - y⁴ = 0

((y - 4)²)² - (y²)² = 0

((y - 4)² - y²)((y - 4)² + y²) = 0

(à suivre)

----- $(y - 4)^2 - y^2 = 0$ -----

$(y - 4)^2 - y^2 = 0$

$y^2 - 8y + 16 - y^2 = 0$

$-8y + 16 = 0$

$y = -16/-8 = 2$

| $y = 2$ |

----- $(y - 4)^2 + y^2 = 0$ -----

$(y - 4)^2 + y^2) = 0$

$y^2 - 8y + 16 + y^2 = 0$

$2y^2 - 8y + 16 = 0$

$2(y^2 - 4y + 8) = 0$

$\sqrt{\Delta} = (-4)^2 - 4 \cdot 1 \cdot 8 = 16 - 32 = -16$

$\sqrt{\Delta} = \sqrt{(-16)} = 4i$ et $-4i$

$\sqrt{\Delta} = +4i$: $y = (-(-4) + 4i)/2 \cdot 1 = 4/2 + 4i/2 = 2 + 2i$

$\sqrt{\Delta} = -4i$: $y = (-(-4) - 4i)/2 \cdot 1 = 4/2 - 4i/2 = 2 - 2i$

| $y = 2 + 2i$ |

| $y = 2 - 2i$ |