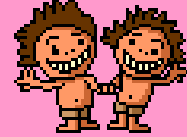


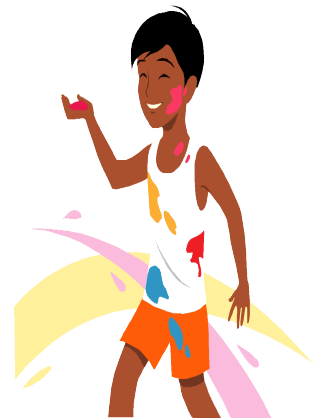
# Order of Operations with Exponents



$$\begin{aligned} 1. & [3+(-3)^2-5(3-7)^2]+1 \\ & [3+(-3)^2-5(-4)^2]+1 \\ & = [3+9-5(16)]+1 \\ & = [3+9-80]+1 \\ & = (12-80)+1 \\ & = -68+1 \\ & = -67 \end{aligned}$$

$$\begin{aligned}
 & 2. -5^2 + [4 + (-2)^2 - 3]^3 \\
 & \begin{array}{c} \text{👧👧} \\ -5^2 + [4 + 4 - 3]^3 \\ -5^2 + [8 - 3]^3 \\ -5^2 + [5]^3 \\ -5^2 + 125 \\ -25 + 125 \\ \textcircled{100} \end{array}
 \end{aligned}$$

$$\begin{aligned}
 & 3. \{[-4 - (-3)]^2\}^2 - [(-5^3 + 2)^3]^2 \\
 & \{[-1]^2\}^2 - [(-125 + 2)^3]^2 \\
 & \{1\}^2 - [(-123)^3]^2 \\
 & 1 - [(-123)^3]^2 \\
 & 1 - [(-1860867)] \\
 & 1 + 1860867 \\
 & = 1860868
 \end{aligned}$$



Lyn has a square swimming pool, 2 m deep with side length 4 m. The swimming pool is joined to a circular hot tub, 1 m deep with diameter 2 m. Lyn adds 690 g of chlorine to the pool and hot tub each week. This expression represents how much chlorine is present per  $1 \text{ m}^3$  of water:

$$\frac{690}{2 \times 4^2 + \pi \times 1^3}$$



$$\frac{690}{2 \times 4^2 + \pi \times 1^3}$$

The suggested concentration of chlorine is  $20 \text{ g/m}^3$  of water.

What is the concentration of chlorine in Lyn's pool and hot tub?

Is it close to the suggested concentration?

$$\begin{aligned} \text{Con(Chl.)} &= \frac{690}{2 \times 4^2 + \pi \times 1^3} = \frac{690}{2 \times 16 + 3.14 \times 1} = \frac{690}{32 + 3.14} \\ &= \frac{690}{35.14} = 19.6 \text{ g/m}^3 \end{aligned}$$