

Let:

$$P = 90kg$$

$$h = 30m$$

$$t_1 = 20^\circ\text{C}$$

$$C(\text{water}) = 1,82 \frac{\text{KJ}}{\text{KG}^\circ\text{C}}$$

$$V(\text{water}) = 5m^3$$

$$M(\text{water}) = \rho Vg = 1000 \times 5 \times 9.8 = 49000N$$

$$t_2 = ?$$

The work done by person will be as: $A = mgh = Ph$

$$A = MC(\Delta t)$$

$$\Delta t = \frac{A}{MC} = \frac{Ph}{MC}$$

$$t_2 = t_1 + \Delta t$$

$$t_2 = t_1 + \frac{PH}{MC}$$

$$t_2 = 20 + \frac{90 \times 30}{49000 \times 1.82} = 20.06^\circ\text{C}$$

Answer: $t_2 = 20.06^\circ\text{C}$