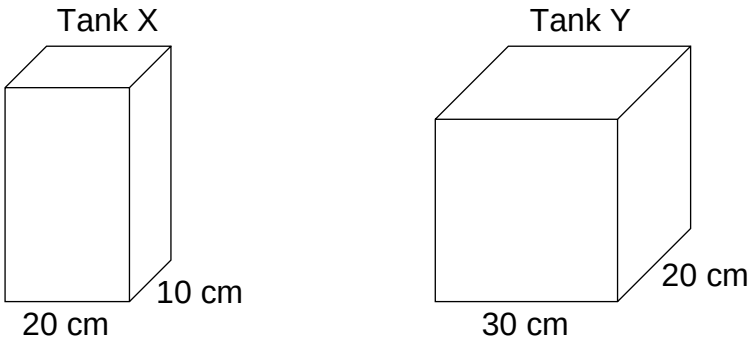
A Maths Question, PSLE 2023

The total amount of water in Tank X and Tank Y was 21 400 cm^3. The height of water in Tank Y was 5 cm higher than Tank X.
a) What is the water level in Tank X?
b) 3 300 cm^3 of water was poured out from Tank Y. The water level height is now half the height of Tank Y. What is the actual height of Tank Y?



<< Volume >>

<Writing>

$30 \times 20 \times 5 = 3\,000$ (cm^3) → Volume of water of 5 cm height in Tank Y

$21\,400 - 3\,000 = 18\,400$ (cm^3) → P

Turn Tank Y so that 20-cm side comes to the front.

Then P is equal to the volume of cuboid with a base of 20 cm × (10 + 30) cm.

$20 \times (10 + 30) = 800$ (cm^2)

$18\,400 \div 800 = 23$ (cm) → a) Height of water in Tank X

$23 + 5 = 28$ (cm) → Height of water in Tank Y at first

$30 \times 20 \times 28 = 16\,800$ (cm^3) → Volume of water in Tank Y at first

$16\,800 - 3\,300 = 13\,500$ (cm^3) → Volume of water in Tank Y at last

$\frac{13500}{30 \times 20} = 22.5$ (cm) → Height of water in Tank Y at last

$22.5 \times 2 = 45$ (cm) → b) Actual height of Tank Y

Answer a) 23 cm b) 45 cm