

PSLE Questions (05 Jun 2012)

- 1) Celestine had some candies to be given out to her students. She had **thrice as many soft candies as hard candies**. She then placed **4 soft candies and 5 hard candies into each packet** for her students. After **giving away all the hard candies**, she was **left with 88 soft candies**. Find the number of candies Celestine had at first.

Solution:

Each packet:	<u>Soft</u>	:	<u>Hard</u>
	4	:	5
Total candies:	<u>Soft</u>	:	<u>Hard</u>
	3	:	1
	15 units		5 units
Gave	- 4 units		- 5 units
Left	11 units		0 units
11 units	→	88	
1 unit	→	$88 \div 11 = 8$	
20 units	→	$8 \times 20 = 160$	

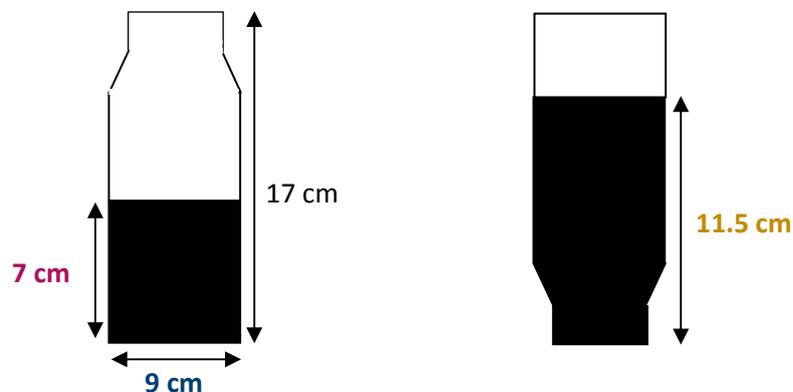
Ans. Celestine had **160 candies** at first.

2) The figure below, not drawn to scale, shows a closed bottle with a square base of sides 9 cm each. The bottle is filled with apple juice to a height of 7 cm.

When the bottle is inverted, the height of the apple juice became 11.5 cm.

- a) What is the volume of the bottle?
- b) Some apple juice was added into the bottle at a rate of 136 ml/s and some apple juice also leaked out from the bottle at a rate of 82 ml/s.

Find the time taken to fill up the whole bottle with apple juice.



Solution:

$$\begin{aligned} \text{Volume of milk} &= 9 \times 9 \times 7 \\ &= 567 \text{ cm}^3 \end{aligned}$$

$$\begin{aligned} \text{Volume of air} &= 9 \times 9 \times 5.5 \\ &= 445.5 \text{ cm}^3 \end{aligned}$$

$$\begin{aligned} \text{Total volume} &= 567 + 445.5 \\ &= 1012.5 \text{ cm}^3 \end{aligned}$$

<u>In</u>	<u>Out</u>	<u>Net Inflow</u>
136ml/s	82ml/s	54ml/s

$$\begin{aligned} \text{Time taken} &= 445.5 \div 54 \\ &= 8.25 \text{ s} \\ &\approx 8\text{s} \end{aligned}$$

Ans. (a) 1012.5 cm³
 (b) 8s

3) On the first day of sale, the **price of the bags was \$20 each**. On the last day of sale, the price of the bags dropped and the **number of bags sold increased by 60%** while the **taking increased by 30%**.

- a) How much did each bag cost on the last day of sale?
b) On the last day of sale, what was the percentage decreased of the price of each bag?

Solution:

	<u>Selling Price</u>	<u>No. of bags</u>	<u>Taking</u>
First day	\$20	5 units (100%)	100 units
Second day	\$16.25	8 units (160%)	1.3 × 100 = 130 units

$$\begin{aligned}\text{Selling price} &= 130 \div 8 \\ &= \$16.25\end{aligned}$$

$$\begin{aligned}\text{Amount decreased} &= \$20 - \$16.25 \\ &= \$3.75\end{aligned}$$

$$\begin{aligned}\text{Percentage decreased} &= \frac{3.75}{20} \times 100\% \\ &= 18.75\%\end{aligned}$$

- Ans. (a) **\$16.25**
(b) **18.75%**

- 4) A worker was asked to complete the baking of some cakes by a particular date. He would be **7 days late**, if he was to **bake 70 cakes each day on average**. However, he would be **4 days early** if he was to **bake 80 cakes each day on average**.
- a) Find the number of cakes the worker had to bake.
- b) When the worker **baked 88 cakes each day on average**, find the number of days he took to complete.

Solution:

70 cakes → **7 days late**

80 cakes → **4 days early**

Difference in no. of days: $7 + 4 = 11$

<u>Each day</u>	<u>No. of day</u>	<u>Total</u>
70	1 unit + 11	70 units + 770
80	1 unit	80 units

10 units → 770

1 unit → $770 \div 10 = 77$

80 units → $77 \times 80 = 6160$

$6160 \div 88 = 70$

Ans. (a) **6160 cakes**
 (b) **70 days**

- 5) A hi-fi set was **sold at a price of \$900 in Shop P** while the same hi-fi set in **Shop Q cost 30% cheaper** than that of Shop P. The percentage discount offered by both shops during the Great Singapore Sale was the **same**. Find the price of the hi-fi set in Shop P during the sale, if the **difference in the selling price is \$202.50 now**.

Solution:

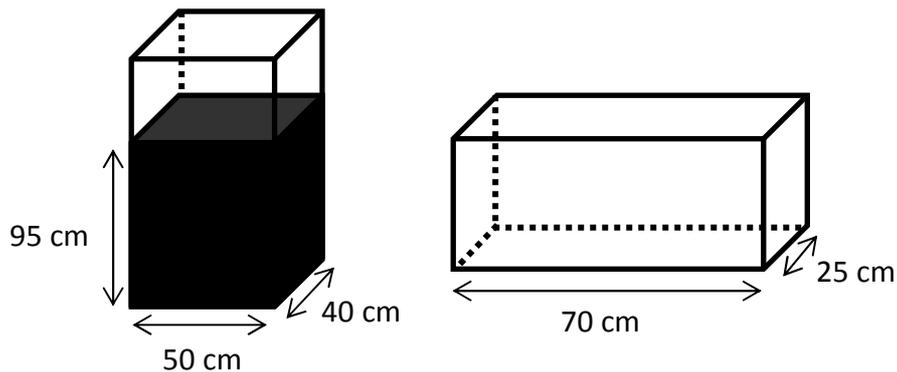
	<u>Shop P</u>	<u>Shop Q</u>	<u>Difference</u>
Before	\$630 (70%)	\$900 (100%)	\$270
Discount	↓ - 25%	↓ - 25%	↓ - \$67.50 (25%)
Sale	\$472.50	\$675	\$202.50

$$\begin{aligned} \text{Percentage discount} &= \frac{\$67.50}{\$270} \times 100\% \\ &= 25\% \end{aligned}$$

$$\begin{aligned} \text{Shop P in sale} &= \frac{75}{100} \times \$630 \\ &= \$472.50 \end{aligned}$$

Ans. The price of the hi-fi set in Shop P during the sale is **\$472.50**.

- 6) Container A was filled with water and was then poured to Container B such that the water level in **Container B was $\frac{2}{3}$ that in Container A**. Find the capacity Container B, leaving your answer in litres.



Solution:

$$\begin{aligned} \text{Volume of water} &= 50 \times 40 \times 95 \\ &= 190\,000 \text{ cm}^3 \end{aligned}$$

<u>P</u>	<u>Q</u>		
$50 \times 40 \times 3 \text{ units}$	+	$70 \times 25 \times 2 \text{ units}$	$\rightarrow 190\,000$
6000 units	+	3500 units	$\rightarrow 190\,000$
		9500 units	$\rightarrow 190\,000$
		1 unit	$\rightarrow 190\,000 \div 9500 = 20$
		3500 units	$\rightarrow 20 \times 3500 = 70\,000$
			$= 70l$

Ans. The capacity of Container B is **70l**.

7) Tank P and Q had the same base area, but **Tank P is taller than Tank Q by 6 cm**. Water was then **poured into Tank P and Q at 8.30 am** and **9.30 am respectively**, with the same and constant rate. The water level then **reached the same height at 12.30 pm**. Tank Q was filled up to the brim at **3.00 pm** whereas Tank P was only filled up to the brim at **3.30 pm**. What is the height of each tank?

Solution:

At 12.30 pm, both same water level:

	<u>P</u>	<u>Q</u>
Time taken	3 hours	2.5 hours
	6	5
Ratio of speed	5	6
Height of tanks:	5×7	6×5.5
	= 35 units	= 33 units
	$\underbrace{\hspace{10em}}$ Difference: 2 units → 6 cm	
	1 unit → 3 cm	
	35 units → $3 \times 35 = 105$ cm	
	33 units → $3 \times 33 = 99$ cm	

NOTE:

Time taken for P and Q to be filled to the brim from 1230:

P: $1530 - 1230 = 3$ hours

Q: $1500 - 1230 = 2.5$ hours

Total time taken for P and Q to be filled to the brim:

P: $1530 - 0830 = 7$ hours

Q: $1500 - 0930 = 5.5$ hours

Ans. The height of Tank P and Q is **105 cm** and **99 cm** respectively.