

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	→	$8 \times 20 = 160$	

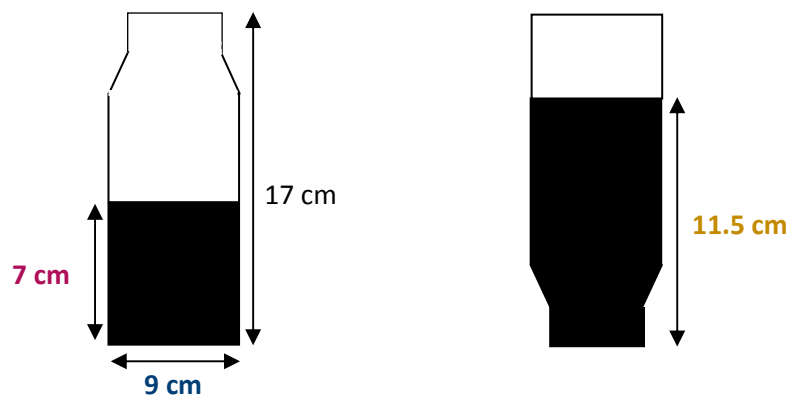
Ans. Celestine had **160 candies** at first.

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:

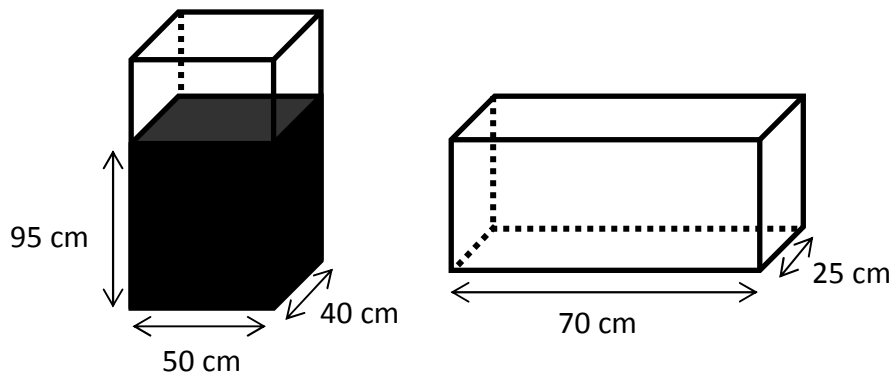
	<u>Shop P</u>	<u>Shop Q</u>	<u>Difference</u>
Before	\$630 (70%)	\$900 (100%)	\$270
Discount	↓ - 25%	↓ - 25%	↓ - \$67.50 (25%)
Sale	\$472.50	\$675	\$202.50

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

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

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>		
$50 \times 40 \times 3 \text{ units}$	+	$70 \times 25 \times 2 \text{ units}$	→ 190 000
6000 units	+	3500 units	→ 190 000
		9500 units	→ 190 000
		1 unit	→ $190\,000 \div 9500 = 20$
		3500 units	→ $20 \times 3500 = 70\,000$
			$= 70l$

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
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:

$$P: \underline{1530 - 1230 = 3 \text{ hours}}$$

$$Q: \underline{1500 - 1230 = 2.5 \text{ hours}}$$

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

$$P: \underline{1530 - 0830 = 7 \text{ hours}}$$

$$Q: \underline{1500 - 0930 = 5.5 \text{ hours}}$$

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