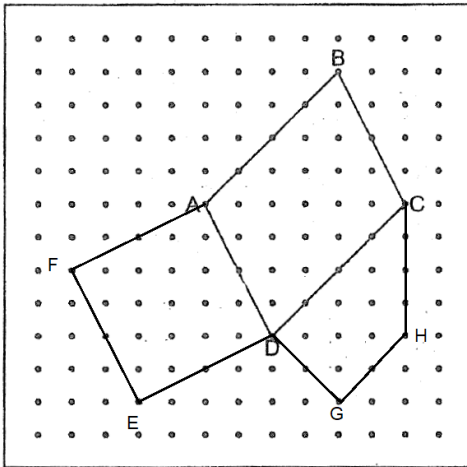


Word Problem Worksheet
& Solutions
Nanyang Paper 2
P6 Mathematics Prelim 2023

Show your working clearly in the space provided for each question and write your answers in the spaces provided. Questions can be found at the end of the worksheet.

6.



$$\text{Area of } ABCD = \frac{1}{2} \times 6 \times 4 \times 2 = 24 \text{ sq units}$$

$$\text{Area of } ADEF = (2 \times 5) + \frac{1}{2} \times 5 \times 2 \times 2 = 20 \text{ sq units}$$

$$\text{Area of } CDGH = \frac{1}{2} \times 4 \times 4 + \frac{1}{2} \times 4 \times 2 = 12 \text{ sq units}$$

$$\text{Ratio of area of } ABCD \text{ to area of } ADEF \text{ to area of } CDGH = 24:20:12 = 6:5:3$$

Ans: a) see fig

b) see fig

c) 6:5:3

7. Let u = price of chicken puff
 Price of beef puff = $u + 1.20$
 Price of 9 chicken puff = $9u$
 Price of 5 beef puff = $5 \times (u + 1.2) = 5u + 6$
 Price of 9 chicken puff = Price of 5 beef puff
 $9u = 5u + 6$
 $4u = 6$
 $u = 6 \div 4 = 1.50$

$$\text{Total spending of Mrs Tan and Mrs Lim} = 9u \times 2 = 9 \times 1.5 \times 2 = \$27$$

Ans: \$27

8. Let number of ice-cream sticks used by each to build popsicles = u

	Janet	Samuel	Farhana
Used	u	u	u
Left	$\frac{3}{4}u$	$\frac{1}{3}u$	$\frac{7}{2}u$

$$\frac{3}{4}u + \frac{1}{3}u + \frac{7}{2}u = \frac{9+4+42}{12}u = \frac{55}{12}u$$

$$\frac{55}{12}u = 1265$$

$$u = 1265 \times \frac{12}{55} = 276 = \text{number of ice-cream sticks used by each of them}$$

Ans: 276

9. Number of man-hours on the computer = $2 \times 3 = 6$ man hours
 Average number of hours each girl work on the computer = $6 \div 5 = 1.2$ hour
 = 1 hour 12 minutes

Ans: 1 hour 12 minutes

10. Difference in distance = 30 km

$$\text{Mid-point Time} = \text{Distance} \div \text{Difference in speed} = 30 \div 25 = 1.2 \text{ hr}$$

$$\text{Time of Patrick to reach Town B} = 1.2 \times 2 + 8 \text{ 00} = 2.4 \text{ hr} + 8 \text{ 00} = 10 \text{ 24}$$

Ans: 10 24

11. a)

$$\text{Volume of water} = 11 \times 13 \times 13 = 1859 \text{ cm}^3$$

b)

$$\text{Additional height of water from cubical container} = 1859 \div (25 \times 22) = 3.38 \text{ cm}$$

$$\text{Height of water in Tank Y in the end} = \frac{5}{7} \times 28 = 20 \text{ cm}$$

$$\text{Initial height of water in Tank Y} = 20 - 3.38 = 16.62 \text{ cm}$$

Ans: a) 1859 cm³

b) 16.62 cm

12. a)

$$\text{Number of 2 cm cubes} = (32 \div 2) \times (24 \div 2) \times (12 \div 2) = 1152$$

b)

$$\begin{aligned} \text{Number of unpainted 2 cm cubes} &= ((32-4) \div 2) \times ((24-4) \div 2) \times ((12-4) \div 2) \\ &= 560 \end{aligned}$$

Ans: a) 1152

b) 560

13. a)

$$\text{Amount collected by Janice} = 12 \times 5 + 7 \times 8 = \$116$$

$$\text{Amount collected by Deepa} = 7 \times 5 + 9 \times 8 = \$107$$

$$\text{Amount collected by Zi Ying} = 6 \times 5 + 10 \times 8 = \$110$$

Janice collected the most amount of \$116

b)

$$\text{Number of card sold by Bradley} = 7 + 9 = 16$$

$$\text{Difference in price between big and small cards} = 8 - 3 = \$3$$

$$\text{Difference in number of small cards} = 15 \div 3 = 5$$

$$\text{Number of small cards} = 7 + 5 = 12$$

Ans: a) Janice, \$116

b) 12

14. a)

Girl standing	Boy standing	Girl sitting	Boy sitting	
1	0	2u	u	
		26	13	(let u = 13)
0	1	9v	4v	
		27	12	(let v = 3)

Total number of children = 26 + 13 + 1 = 40

b)

Total children at first	27	13	
Remainder children	9p	2p	
	18	4	(let p = 2)
Children left	9	9	

Total children left for competition = 9 + 9 = 18

Ans: a) 40
b) 18

15. a)

$$\angle FMG = \frac{1}{2} \times (180 - 45) = 67.5^\circ \quad (\text{FMG is isosceles triangle})$$

b)

$$\angle FEL = 2 \times \angle FLE$$

$$2 \times \angle FLE + \angle FLE = 90^\circ$$

$$\angle FLE = 90 \div 3 = 30^\circ$$

$$\angle GEL = 45 - \angle LEH = 45 - \angle FLE = 45 - 30 = 15^\circ$$

c)

$$KJE = LEH = 30^\circ \quad (\text{KEJ is isosceles triangle})$$

Ans: a) 67.5°
b) 15°
c) 30°

16. a)

Most number of laptops were sold on Day 3

b)

Number of laptops sold on first 2 days = $150 - 90 = 60$

Percentage of laptops sold on first 2 days = $60 \div 150 \times 100 = 40\%$

c)

Undiscounted price = $1288 \div 0.8 = \$1610$

Price with 50% discount = $1610 \times 0.5 = \$805$

Total sales = $1288 \times 130 + 805 \times 20 = 167\,440 + 16\,100 = \$183\,540$

Ans: a) Day 3

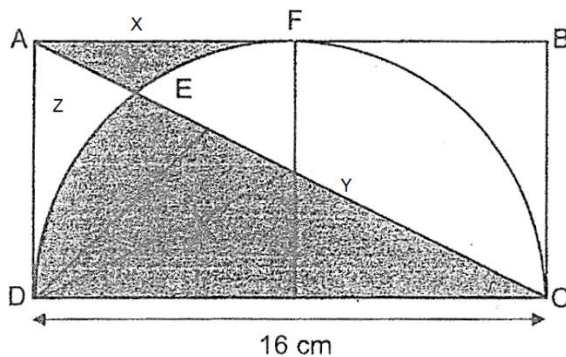
b) 40%

c) \$183 540

17. a)

Area of semi-circle = $\frac{1}{2} \times 3.14 \times 8 \times 8 = 100.48 \text{ cm}^2$

b)



$$X - Y = (X + Z) - (Y + Z)$$

$$X + Z = 8 \times 8 - \frac{1}{4} \times 3.14 \times 8 \times 8 = 13.76 \text{ cm}^2$$

$$Y + Z = \frac{1}{2} \times 16 \times 8 = 64 \text{ cm}^2$$

$$X - Y = 64 - 13.76 = 50.24 \text{ cm}^2$$

\therefore

Ans: a) 100.48 cm^2

b) 50.24 cm^2