

Word Problem Worksheet  
& Solutions  
Nan Hua 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. a)

$$3 \div \frac{2}{5} = 3 \times \frac{5}{2} = 7 \frac{1}{2} \approx 7$$

b)

$$\text{Length of last piece} = \frac{1}{2} \times \frac{2}{5} = \frac{1}{5} \text{ m}$$

Ans: a) 7

b)  $\frac{1}{5}$  m

7. Let number of children at first =  $100u$

$$\text{Number of boys at first} = 0.7 \times 100u = 70u$$

$$\text{Number of girls at first} = 0.3 \times 100u = 30u$$

$$\text{Increase in number of boys} = 70u \times \frac{20}{100} = 14u$$

$$\text{Increase in number of girls} = 30u \times \frac{50}{100} = 15u$$

$$\text{Total increase} = 14u + 15u = 29u = 87$$

$$u = 87 \div 29 = 3$$

$$\text{Total number of students in the end} = 100u + 29u = 129 \times 3 = 387$$

Ans: 387

8.  $\angle DAB + \angle ADB = 85^\circ$  (external angle)  
 $\angle EAF + \angle AFE = 180 - \angle FEA = 180 - 79 = 101^\circ$   
 $\angle DAB + \angle ADB + \angle EAF + \angle AFE = 85 + 101 = 186^\circ$

Ans:  $186^\circ$

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9. Let radius of small quarter circle =  $u$   
Radius of big quarter circle =  $2u$   
 $2u + u + 2u = 30$   
 $5u = 30$   
 $u = 30 \div 5 = 6 \text{ cm}$   
Perimeter of 2 small quarter circle =  $\frac{1}{2} \times \pi \times 2 \times 6 = 6\pi$   
Perimeter of 2 big quarter circle =  $\frac{1}{2} \times \pi \times 2 \times 12 = 12\pi$   
Perimeter of figure =  $6\pi + 12\pi + 12 + 12 + 12 = 18\pi + 36 \text{ cm}$

Ans:  $18\pi + 36 \text{ cm}$

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10. Difference in average =  $82 - 80 = 2$  cm

Difference in total score =  $98 - 48 = 50$

Number of students =  $50 \div 2 = 25$

Ans: 25

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11. a)

Average weekly savings =  $(2m + m + 5 + 3m - 2) \div 3$

=  $(6m + 3) \div 3$

=  $\$(2m + 1)$

b)

Average savings =  $2m + 1 = 2 \times 4 + 1 = \$9$

c)

Ailing's savings = \$8 is less than average savings → True

Carries saves the most money = \$10 → True

Ans: a)  $\$(2m + 1)$

b) \$9

c) T, T

12. a)

Number of students favouring the 4 games =  $120 + 60 + 60 + 60 = 300$

Number of students favouring basket ball =  $300 \div 3 = 100$

Total number of students =  $300 + 100 = 400$

Percentage of students who chose soccer as favourite game

$$= \frac{120}{400} \times 100 = 30\%$$

b)

Total number of students =  $300 + 100 = 400$

Ans: a) 30%

b) 400

13. Let amount of money Peter had =  $u$

	Tim	Peter
Amount at first	$\frac{2}{3}u$	$u$
Change in amount	+120	-120
Amount in the end	$\frac{2}{3}u + 120$	$u - 120$

Tim had twice as much money as Peter

$$\frac{2}{3}u + 120 = 2 \times (u - 120)$$

$$2u + 360 = 6u - 720$$

$$6u - 2u = 360 + 720$$

$$4u = 1080$$

$$u = 1080 \div 4 = 270$$

$$\text{Amount Tim had at first} = \frac{2}{3}u = \frac{2}{3} \times 270 = \$180$$

Ans: \$180

14. a)

Let figure number =  $n$

$$\text{Number of shaded tiles} = n + 2(n+2) = 3n + 4$$

$$3n + 4 = 19$$

$$3n = 19 - 4 = 15$$

$$n = 15 \div 3 = 5$$

b)

$$\text{Total number of shaded and plain tiles} = (n + 2) \times (n + 2)$$

$$(18 + 2) \times (18 + 2) = 400$$

c)

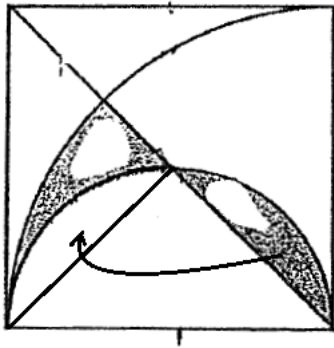
$$\text{Number of shaded tiles} = 3n + 4 = 3 \times 18 + 4 = 58$$

$$\text{Percentage of shaded tiles} = \frac{58}{400} \times 100 = 14.5\%$$

Ans: a) 5  
b) 400  
c) 14.5%

15\*. Radius of big quarter circle = square root of 196 = 14 cm

$$\text{Radius of small semi-circle} = 14 \div 2 = 7 \text{ cm}$$



$$\text{Shaded area} = \frac{1}{8} \text{ big circle} - \text{triangle}$$

$$= \frac{1}{8} \times 3.14 \times 14 \times 14 - \frac{1}{2} \times 14 \times 7 = 76.93 - 49 = 27.93 \text{ cm}^2$$

Ans: 27.93 cm<sup>2</sup>

16. a)

$$\text{Water volume after 6 min} = 6 \times 0.7 = 4.2 \text{ l}$$

b)

$$60\% \text{ of tank} = 0.6 \times 20 \times 35 \times 50 = 21 \text{ l}$$

$$\text{Addition water volume after 6 min} = 21 - 4.2 = 16.8 \text{ l}$$

$$\text{Flow rate after 6 min} = 0.7 - 0.5 = 0.2 \text{ l per min}$$

$$\text{Time taken after 6 min} = 16.8 \div 0.2 = 84 \text{ minutes}$$

$$\text{Total time taken} = 84 + 6 = 90 \text{ min}$$

Ans: a) 4.2 l

b) 90 min

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17. a)

Tuesday's spending is the most

b)

$$\text{Percent decrease} = \frac{4-3.6}{4} \times 100 = 10\%$$

c)

$$1.6u = \$1.60$$

$$u = 1.6 \div 1.6 = \$1$$

$$\text{Total amount left for 5 days} = 2.4u + 1.6u + 4u + 3.6u + 2u = 13.6u$$

$$\text{Total amount left for 5 days} = 13.6 \times 1 = \$13.60$$

Ans: a) Tuesday

b) 10%

c) \$13.60

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