

Word Problem Worksheet
& Solutions
Pei Hwa 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)

$$\text{Distance traveled by both in 1 hr} = 87 + 65 = 152 \text{ km}$$

b)

$$\text{Time when they meet} = 532 \div 152 = 3.5 \text{ hr after 10.40 am} = 14:10$$

Ans: a) 152 km

b) 14:10

7. a)

$$\text{Total cost for Beth} = (3y + y) - 5 = 4y - 5$$

b)

$$\text{Total cost for Ann} = (3y + y + y + 20 - 10) = 5y + 10$$

$$5y + 10 = 140$$

$$y = (140 - 10) \div 5 = \$26$$

Ans: a) $\$(4y - 5)$

b) \$26

8. a)

Let number of girls = u

Number of boys = $u + 80$

Number of boys who stayed in club = $\frac{9}{10} \times (u + 80) = \frac{9}{10}u + 72$

Total number who stayed in club = $\frac{9}{10}u + 72 + u = 1402$

$$9u + 720 + 10u = 14020 \quad (\times 10)$$

$$19u = 14020 - 720 = 13300$$

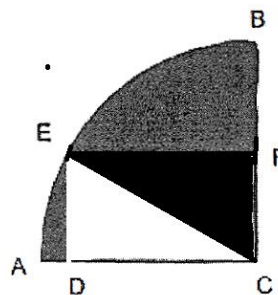
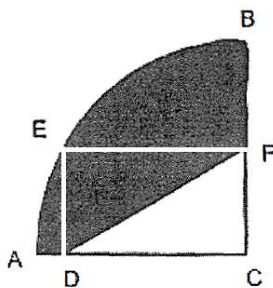
$$u = 13300 \div 19 = 700 = \text{number of girls}$$

Ans: a) 700

9. a)

Area of quarter circle = $\frac{1}{4} \times 3.14 \times 10 \times 10 = 78.5 \text{ cm}^2$

b)



Perimeter of ABC quarter circle = $\frac{1}{4} \times 3.14 \times 20 = 15.7 \text{ cm}$

$DF = EC = 10 \text{ cm}$

$BF + AD = BC + AC - 14 = 10 + 10 - 14 = 6$

Perimeter of DABF = $15.7 + 6 + 10 = 31.7 \text{ cm}$

Ans: 31.7 cm

10. a)

Total number of books sold in Shop B in 2020 & 2021 = $28u = 420$

$$u = 420 \div 28 = 15$$

Number of books sold in Shop A in 2020 & 2021 = $12u = 12 \times 15 = 180$

b)

Number of books Shop C sold in 2022 = $\frac{75}{100} \times 24u = \frac{75}{100} \times 24 \times 15 = 270$

Number of books Shop B sold in 2022 = 270

Percent increase in Shop B from 2021 to 2022 = $\frac{270-225}{225} \times 100 = 20\%$

Ans: a) 180
b) 20%

11. a) 25, 100, 125

b)

Let solid number = n

Number of painted cubes = n^2

$$n^2 = 196$$

$n = \text{square root of } 196 = 14$

c)

Total number of cubes = n^3

$$n^3 = 5832$$

$n = 18$

Unpainted cubes = $n^3 - n^2 = 5832 - 18 \times 18 = 5508$

Ans: a) 25, 100, 125
b) 14
c) 5508

12*. a)

Number of boxes bought by Raja = 37 small + 9 big

Number of boxes bought by Hannah = 9 small + 37 big

Hannah paid more

Difference in amount paid = $(37 - 9) \times 35.50 - (37 - 9) \times 9.8 = \719.6

b)

Total amount for small boxes = $(37 + 9) \times 9.80 = \$450.8$

Amount left for big boxes = $3000 - 450.8 = \$2549.20$

Let number of big boxes Raja bought = u

Number of big boxes Hannah bought = $(37 - 9) + u = 28 + u$

Total big boxes = $28 + u + u = 28 + 2u$

Total price of big boxes = $35.5 \times (28 + 2u) = 2549.20$

$28 + 2u = 2549.20 \div 35.5 = 71.8$

$2u = 71.8 - 28 = 43.8$

$u = 43.8 \div 2 = 21.9 \approx 21$

Ans: a) Hannah, \$719.6

b) 21

13*. a)

$$\frac{5}{8} \text{ of remaining money} \rightarrow 205 - 30 \rightarrow 175 \text{ mangoes}$$

$$\frac{1}{8} \text{ of remaining money} \rightarrow 175 \div 5 \rightarrow 35 \text{ mangoes}$$

$$\frac{8}{8} \text{ of remaining money} \rightarrow 35 \times 8 \rightarrow 280 \text{ mangoes}$$

$$\frac{7-3}{7} \rightarrow \frac{4}{7} \text{ of money} \rightarrow 280 \text{ mangoes}$$

$$\frac{3}{7} \text{ of money} \rightarrow 280 \times \frac{3}{4} \rightarrow 210 \text{ mangoes}$$

$$\text{Equivalent amount left for apples} = 210 - 30 = 180 \text{ mangoes}$$

$$\text{Number of apples bought} = \frac{5}{3} \times 180 = 300$$

b)

$$\text{Ratio of number of mangoes to apples before baking} = 205 : 300$$

$$\text{Ratio of mangoes left to apples left} = 1 : 6 = 19 : 114 \quad (\times 19)$$

$$\text{Number of apples used} = 300 - 114 = 186$$

Ans: a) 300

b) 186

14. a)

$$\angle EDC = 180 - 67 - 67 = 46^\circ \quad (\text{CDE isosceles})$$

b)

$$\begin{aligned} \angle EGF &= 180 - \angle CEF - 88 = 180 - 67 - 88^\circ && (\text{CDEF rhombus}) \\ &= 25^\circ \end{aligned}$$

c)

$$\angle BCF = 360 - 90 - 67 - 67 = 136^\circ$$

$$\angle CBF = \frac{1}{2} \times (180 - 136) = 22^\circ \quad (\text{CBF isosceles})$$

Ans: a) 46°

b) 25°

c) 22°

15. a)

$$\text{Water level in Y} = 25200 \div (15 \times 30) = 56 \text{ cm}$$

b)

$$\text{Level of water in X} = 7200 t \div (60 \times 20) = 6t$$

$$\text{Level of water in Y} = 56 - (3600t / 450) = 56 - 8t$$

$$6t = 56 - 8t$$

$$14t = 56$$

$$t = 56 \div 14 = 4 \text{ min} = 9.04 \text{ am}$$

Ans: a) 56 cm

b) 9.04 am

16. a)

$$\angle AHD = \frac{1}{2} \times (180 - 36) = 72^\circ$$

$$\angle HDA = 90 - 72 = 18^\circ$$

$$\angle ADG = 90 - 18 - 18 = 54^\circ$$

b)

$$\angle HDG = 90 - 18 = 72^\circ$$

$$\angle CEG = 72 - 60 = 12^\circ$$

(external angle)

Ans: a) 54°

b) 12°

17. a)
True, False, False
b)
640

Ans: a) T, F, F
b) 640
