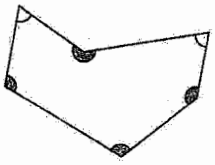
# EPH PSLE YEARLY MATHEMATICS WORKED SOLUTIONS

## 2015

**Paper 1 Booklet A**

1. **(4)**
The digit 8 in the hundreds place is greater than 5. Hence, the digit 1 in the thousands place is rounded up to 2. The resulting answer is 32 000.

2. **(4)**

The marked angles are greater than a right angle.
Number of angles greater than a right angle → 4

3. **(1)**
$\angle a = \angle c$ (vertically opposite angles)

4. **(4)**
When $g = 6$,
$9 \times 6 - 4 + 2 \times 6 = 54 - 4 + 12$
$= 50 + 12$
$= 62$

5. **(2)**
Volume of the cuboid
$= 3 \times 3 \times 10$
$= 90\ cm^3$

6. **(2)**
6 g is too light. 600 g and 6000 g is too heavy for 8 one-dollar coins. 60 g is the most appropriate answer.

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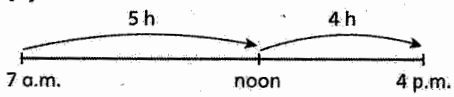
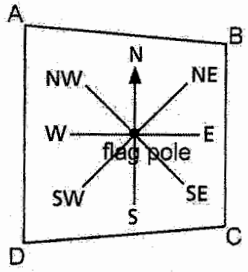
7. **(1)**

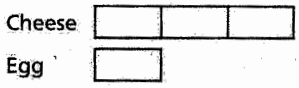
8. **(2)**


Duration he was in school
$\longrightarrow 5 + 4$
$= 9$ h

9. **(3)**


C is south-east of the flagpole.

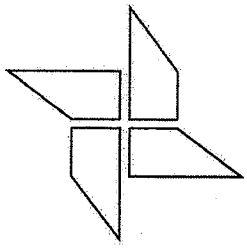
10. **(4)**
Fraction of the sandwiches that were Chicken sandwiches
$\longrightarrow 1 - \frac{1}{5} - \frac{1}{4}$
$= \frac{11}{20}$

11. **(2)**


Fraction of the sandwiches that were Egg sandwiches
$\longrightarrow \frac{1}{4} \div 4$
$= \frac{1}{4} \times \frac{1}{4}$
$= \frac{1}{16}$

12. **(1)**
3.15 km = 3150 m
$3\frac{1}{5}$ km = 3.2 km
= 3200 m
3 km 105 m = 3105 m
Arranged from the shortest to the longest:
3 km 105 m, 3.15 km, $3\frac{1}{5}$ km

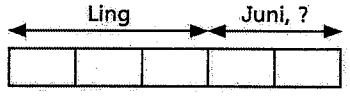
13. **(4)**



Total perimeter of four such trapeziums
⟶ 4 × 36
= 144 cm
Number of lengths of the side AB left out if combined as in Figure 2
⟶ 8
Perimeter of Figure 2 more than total perimeter of four such trapeziums
⟶ 144 – 96
= 48 cm
Length of the side AB of the trapezium
⟶ 48 ÷ 8
= 6 cm

14. **(4)**
30 is a multiple of 6.
In order to make the number a multiple of 6, the remainder must also be a multiple of 8.
The next multiple of 6 after 8 is 12.
(12 – 8 =) 4 can be added to the number to change it to a multiple of 6.

15. **(3)**
Number of cards Ling made more than Juni on Sunday
⟶ 20 – 15
= 5
Total number of cards Ling made more than Juni
⟶ 19 + 5
= 24




Number of units of greeting cards Ling made more than Juni
⟶ 3 – 2
= 1
1 unit ⟶ 24 greeting cards
2 units ⟶ 2 × 24
= 48 greeting cards
Number of cards Juni made ⟶ 48

**Paper 1 Booklet B**

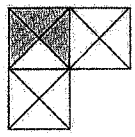
16.
$$\begin{array}{r} 1604 \\ 5\overline{)8020} \\ 5 \\ \hline 30 \\ 30 \\ \hline 2 \\ 0 \\ \hline 20 \\ 20 \\ \hline 0 \end{array}$$

The value is **1604**.

17. Sum ⟶ 9 + 14
= 23
23 ÷ 2 = 11.5

The average is **11.5**.

18. $\angle k = 180 - 40° - 112°$ (angles on a straight line)
= **28°**

19. 

$\frac{3 \div 3}{12 \div 3} = \frac{1}{4}$

$\frac{3}{12}$ or $\frac{1}{4}$ of the figure is shaded.

20. Road **E** and road **B** are parallel to each other.

21. Road **E** and road **D** are perpendicular.
or
Road **D** and road **B** are perpendicular.

22. 100% + 7% = 107%
100% ⟶ \$30
1% ⟶ \$30 ÷ 100
= \$0.30
107% ⟶ 107 × \$0.30
= \$32.10

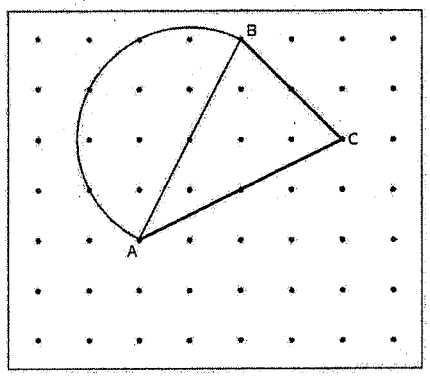
The price of the watch after adding 7% GST is **\$32.10**.

23. 5 divisions ⟶ 1 *l*
= 1000 m*l*
1 division ⟶ 1000 m*l* ÷ 5
= 200 m*l*
2 divisions ⟶ 2 × 200 m*l*
= 400 m*l*
1 *l* + 400 m*l* = 1 *l* 400 m*l*
= 1400 m*l*

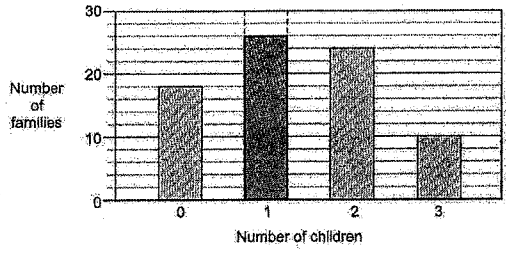
**1400** m*l* of water is in the container.

24. The length of the radius of the semicircle is **2.7** cm.

25. *(Accept any possible answers.)*

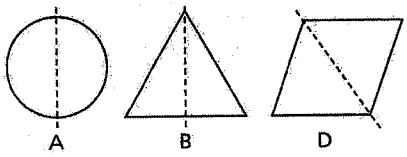



26. Fraction of the families that do not have exactly 1 child
⟶ $1 - \frac{1}{3}$
$= \frac{2}{3}$
Number of families that do not have exactly 1 child
⟶ 18 + 24 + 10
= 52
$\frac{2}{3}$ of the families ⟶ 52
$\frac{1}{3}$ of the families ⟶ 52 ÷ 2
= 26
Number of families that have exactly 1 child ⟶ 26




27. Amount charged for additional hours
⟶ \$200 – \$80
= \$120
Number of additional hours charged
⟶ \$120 ÷ \$20
= 6
3 h + 6 h = 9 h

She paid for **9** h of cleaning.

28. 


Figures **A**, **B** and **D** have at least one line of symmetry.

29. Blue straws : Red and green straws

1 : 4 – 1

×5 ↓ 1 : 3 ↓ ×5

5 : 15

Red straws : Green straws

×3 ↓ 2 : 3 ↓ ×3

6 : 9

The ratio of the number of blue straws to that of green straws is **5 : 9**.

30. 1st set of steps ⟶ 3 × 5
= 15 cubes
2nd set of steps ⟶ 6 × 5
= 30 cubes
3rd set of steps ⟶ 10 × 5
= 50 cubes

+ 15 + 20 + 25 + 30 + 35

15, 30, 50, 75, 105, 140

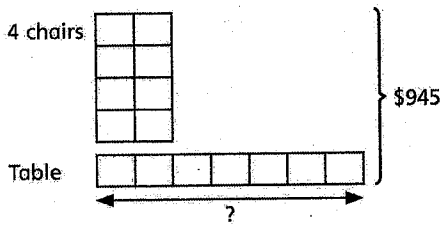
The 6th set of steps had 140 cubes.
6 + 1 = 7

The height of the set of steps that had 140 cubes would be **7** cm.

**Paper 2**

1. 1.2 kg = 1200 g
Number of sets of 100 g of grapes
⟶ 1200 ÷ 100
= 12
12 × 70¢ = 840¢
= $8.40

She paid **$8.40**.

2. 


15 units ⟶ $945
1 unit ⟶ $945 ÷ 15
= $63
7 units ⟶ 7 × $63
= $441

Malek paid **$441** for the table.

3. Total number of oranges Rei divided among them
⟶ 150 – 17
= 133
Total number of apples Rei divided among them
⟶ 100 – 5
= 95
Factors of 133: (1), 7, (19) and 133
Factors of 95: (1), 5, (19) and 95

The common factors of 95 and 133 are 1 and 19.
Since there is more than 1 neighbour, 1 is not the answer.

There were **19** neighbours.

4. ∠ABC = 90° (angles of a square)
∠ABE = 360° – 252° – 90° (angles at a point)
= 18°
∠CBF = ∠ABE
= 18°
∠ABF = 90° – 18°
= **72°**

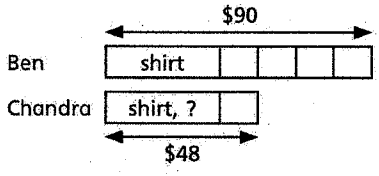
5. Lowest total score for three of four games for Chong to qualify for Round 2
⟶ 3 × 25
= 75
Choose the two highest scores 23 and 24.
75 – 23 – 24 = 28

The lowest score Chong must get in the 4th game to qualify for Round 2 is **28**.

6. (a) ∠EFC = 180° – 54° (angles between
= **126°** two parallel lines, FC // ED)

(b) ∠AFB = 126° (vertically opposite angles)
∠BAF = 180° – 30° – 126° (sum of
= 24° angles in a triangle)
∠BCA = 24° (base angles of an isosceles triangle)
∠ABC = 180° – 24° – 24° (sum of
= 132° angles in a triangle)
∠FBC = 132° – 30°
= **102°**

7.




3 units ⟶ $90 – $48
= $42
1 unit ⟶ $42 ÷ 3
= $14
$48 – $14 = $34

The shirt cost **$34**.

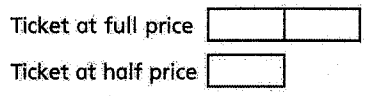
8. (a) Perimeter of the triangle
⟶ $w + 3w + 20$
= $(4w + 20)$ cm
$13w – 4w – 20 = (9w – 20)$ cm

The length of the remaining wire is **$(9w – 20)$ cm**.

(b) When $w = 6$,
Length of the remaining wire
⟶ 9 × 6 – 20
= 34 cm
Length of the rectangle
⟶ 2 × 6
= 12 cm
2 × breadth of the rectangle
⟶ 34 – 12 – 12
= 10 cm
10 ÷ 2 = 5 cm

The breadth of the rectangle was **5 cm**.

9. Percentage of the tickets given away free
⟶ 100% – 55% – 40%
= 5%
5% ⟶ 20 tickets
1% ⟶ 20 ÷ 5
= 4 tickets
55% ⟶ 55 × 4
= 220 tickets
40% ⟶ 40 × 4
= 160 tickets




Total amount of money collected for the tickets sold at full price
⟶ 220 × 2
= 440 units

Total amount of money collected for the tickets sold at half price
⟶ 160 units
Total amount of money collected
⟶ 440 + 160
= 600 units
600 units ⟶ \$7200
1 unit ⟶ \$7200 ÷ 600
= \$12
2 units ⟶ 2 × \$12
= \$24

The full price of a ticket was **\$24**.

10. (a) In order to find the most number of printers sold, look for the line that is the steepest.
The steepest line is from day 1 to day 2.

The most number of printers sold was on **day 2**.

(b) Total number of printers sold in the first three days
⟶ 80 – 28
= 52
$\frac{52}{80} \times 100\% = 65\%$

**65%** of the 80 printers were sold in the first three days of the sale.

(c) Total number of printers sold during the sale
⟶ 80 – 4
= 76
Amount of money collected from the printers sold during the sale
⟶ 76 × \$120
= \$9120
Number of remaining printers sold without discount ⟶ 4
100% – 25% = 75%
75% ⟶ \$120
1% ⟶ \$120 ÷ 75
= \$1.60
100% ⟶ 100 × \$1.60
= \$160
Price of a printer without discount ⟶ \$160
Amount of money collected from the printers sold without discount
⟶ 4 × \$160
= \$640
\$9120 + \$640 = \$9760

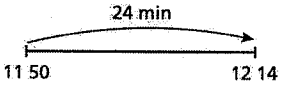
The total amount of money collected from selling all 80 printers was **\$9760**.

11. Percentage of boys in the Band
⟶ 100% – 70%
= 30%
Percentage of boys in the Choir
⟶ 100% – 60%
= 40%
30% of the members in the Band
= 40% of the members in the Choir
1% of the members in the Band
⟶ 40% ÷ 30
$= 1\frac{1}{3}\%$ of the members in the Choir
70% of the members in the Band
⟶ $70 \times 1\frac{1}{3}\%$
$= 93\frac{1}{3}\%$ of the members in the Choir
$93\frac{1}{3}\% - 60\% = 33\frac{1}{3}\%$
$33\frac{1}{3}\%$ of the members in the Choir
⟶ 20
1% of the members in the Choir
⟶ $20 \div 33\frac{1}{3}$
= 0.6 member
40% of the members in the Choir
⟶ 40 × 0.6
= 24 members
30% of the members in the Band
⟶ 24 members
1% of the members in the Band
⟶ 24 ÷ 30
= 0.8 member

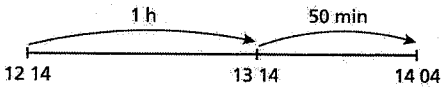
100% of the members in the Band
$\longrightarrow 100 \times 0.8$
$= 80$

There are **80** members in the Band.

12. (a) Time she took to reach the park from her home
$\longrightarrow 10 \text{ km} \div 25 \text{ km/h}$
$= 0.4 \text{ h}$
$= 24 \text{ min}$




Time at which she reached the park $\longrightarrow$ 12 14




She left the park at **14 04**.

(b) $40 \text{ min} = \frac{2}{3} \text{ h}$

$10 \text{ km} \div \frac{2}{3} \text{ h} = 15 \text{ km/h}$

Her average speed for the journey home was **15 km/h**.

13. (a) $\frac{1}{2} \times 10 \times 24 = 120 \text{ cm}^2$

The area of the triangle is **120 cm²**.

(b) 2 such triangles can form a rectangle of length 24 cm and breadth 10 cm.
Number of lengths of the rectangle that can be cut along the length of the cardboard
$\longrightarrow 100 \div 24$
$= 4 \text{ R } 4 \text{ cm}$
Number of breadths of the rectangle that can be cut along the breadth of the cardboard
$\longrightarrow 60 \div 10$
$= 6$
Number of rectangles that can be cut from the cardboard
$\longrightarrow 6 \times 4$
$= 24$
$24 \times 2 = 48$

He can cut at most **48** such triangles.

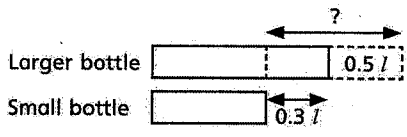
14. (a) 3 × radius of the smaller quarter circles
$\longrightarrow 28 - 2 - 2$
$= 24 \text{ m}$
Radius of the smaller quarter circle
$\longrightarrow 24 \div 3$
$= 8 \text{ m}$
$2 + 8 + 8 + 2 = 20 \text{ m}$

The width of the rectangular garden is **20 m**.

(b) Area of each larger quarter circle
$\longrightarrow \frac{1}{4} \times 3.14 \times (8 + 2) \times (8 + 2)$
$= 78.5 \text{ m}^2$
Area of each smaller quarter circle
$\longrightarrow \frac{1}{4} \times 3.14 \times 8 \times 8$
$= 50.24 \text{ m}^2$
$3 \times (78.5 - 50.24) + (8 + 2) \times 2$
$= 3 \times 28.26 + 10 \times 2$
$= 104.78 \text{ m}^2$

The area of the path is **104.78 m²**.

15. (a)




$0.5 + 0.3 = 0.8 \text{ l}$

Each large bottle held **0.8 *l*** of drink more than each small bottle.

(b) 1 large bottle
⟶ 1 small bottle + 0.8 *l*
3 large bottles
⟶ 3 small bottles + 2.4 *l*
3 large bottles + 5 small bottles
⟶ 3 small bottles + 2.4 *l* + 5 small bottles
= 8 small bottles + 2.4 *l*
= 7.2 *l*
8 small bottles ⟶ 7.2 *l* – 2.4 *l*
= 4.8 *l*
1 small bottle ⟶ 4.8 *l* ÷ 8
= 0.6 *l*
7.2 + 0.6 + 0.3 = 8.1 *l*

Yan made **8.1** *l* of drink.

16. (a) The smallest common multiple of 2 and 3 is 6.
The common multiples of 2 and 3 are multiples of 6.
Cost of 6 large potted plants
⟶ (6 ÷ 2) × $15
= $45
Cost of 6 small potted plants
⟶ (6 ÷ 3) × $10
= $20
Cost of 6 large potted plants more than 6 small potted plants
⟶ $45 – $20
= $25
Number of sets of large potted plants
⟶ $175 ÷ $25
= 7
Number of large potted plants
⟶ 7 × 6
= 42

2 × 42 = 84
She bought **84** potted plants altogether.

(b) The smallest common multiple of 15 and 10 is 30.
Number of sets of large potted plants that can be bought with $30
⟶ $30 ÷ $15
= 2
Number of large potted plants that can be bought with $30
⟶ 2 × 2
= 4
Number of sets of small potted plants that can be bought with $30
⟶ $30 ÷ $10
= 3
Number of small potted plants that can be bought with $30
⟶ 3 × 3
= 9
$\frac{4}{4+9} = \frac{4}{13}$

$\frac{4}{13}$ of the potted plants he bought were large.

17. (a) The three girls had the same number of coins and the value of a fifty-cent coin is 5 times the value of a ten-cent coin. Therefore, the girl with the most number of fifty-cent coins had the most money and the girl with the least number of fifty-cent coins had the least money.

**Cindy** had the most money and **Beth** had the least money.

(b) The difference between the number of fifty-cent coins Amy and Beth had was equal to the difference between the number of ten-cent coins Amy and Beth had.
Difference between the number of ten-cent coins Amy and Beth had
⟶ 15 – 9
= 6
Difference between the value of a fifty-cent coin and a ten-cent coin
⟶ 50¢ – 10¢
= 40¢
6 × 40¢ = 240¢
= $2.40

The difference in the total value of Amy and Beth's coins was **$2.40**.

(c) Difference between the number of ten-cent coins Beth and Cindy had
⟶ 15
Difference between the value of Beth's and Cindy's coins
⟶ 15 × 40¢
= 600¢
= $6
Total value of fifty-cent coins Beth spent
⟶ $10 – $6
= $4
Number of fifty-cent coins Beth had
⟶ $4 ÷ 50¢
= 400¢ ÷ 50¢
= 8
15 + 8 = 23

Cindy had **23** fifty-cent coins.

18. (a)

| Figure Number | Number of rods used |
|---|---|
| 1 | 10 |
| 2 | 15 |
| 3 | 18 |
| 4 | 23 |
| 5 | 26 |
| 6 | 31 |

(+5, +3, +5, +3, +5)

(b) Figure 7 ⟶ 31 + 3
= 34 rods
Figure 8 ⟶ 34 + 5
= 39 rods
Figure 9 ⟶ 39 + 3
= 42 rods
Figure 10 ⟶ 42 + 5
= 47 rods
Figure 11 ⟶ 47 + 3
= 50 rods
50 – 42 = 8

The difference in the number of rods Ishak would use for Figure 9 and Figure 11 is **8**.

(c) For every increase of 2 in figure numbers, there is an increase in 8 rods.
Number of increases of 8 rods from Figure 10 to Figure 30
⟶ (30 – 10) ÷ 2
= 10

47 + (10 × 8) = 127
He would use **127** rods for Figure 30.