EPH PSLE YEARLY MATHEMATICS WORKED SOLUTIONS (2014–2016)

2016

Paper 1 Booklet A

1. **(3)**

Ones	.	Tenths	Hundredths	Thousandths
7	.	6	9	8

2. **(4)**
Cost of each stamp
$\longrightarrow \$15 \div 30$
$= 1500¢ \div 30$
$= 50¢$

3. **(3)**
$3\frac{5}{6} = \frac{3 \times 6 + 5}{6}$
$= \frac{18 + 5}{6}$
$= \frac{23}{6}$

4. **(3)**
Percentage of students who go by bus
$\longrightarrow 100\% - 40\% - 20\% - 10\%$
$= 30\%$
Ratio of the number of students who walk to school to the number of students who go by bus
$= 20 : 30$
$= 2 : 3$

5. **(1)**

6. **(4)**
5 divisions $\longrightarrow$ 0.1
1 division $\longrightarrow 0.1 \div 5$
$= 0.02$
3 divisions $\longrightarrow 3 \times 0.02$
$= 0.06$
$6 + 0.06 = 6.06$

7. **(1)**
$\angle CBE = 60°$ (angles of an equilateral triangle)
$\angle CBA = 180° - 68°$ (angles between two parallel lines, BC // AD)
$= 112°$
$\angle ABE = 112° - 60°$
$= 52°$

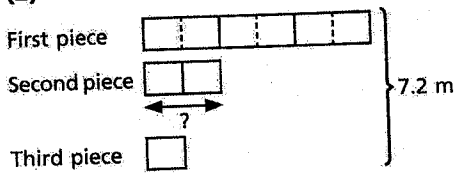
8. **(2)**
$29.5 + 60.4 \times 9.87 \approx 30 + 60 \times 10$
$= 30 + 600$
$= 630$

9. **(3)**
Option (1): $\frac{3}{4} - \frac{1}{2} = \frac{3}{4} - \frac{2}{4}$
$= \frac{1}{4}$
Option (2): $\frac{3}{5} - \frac{1}{2} = \frac{6}{10} - \frac{5}{10}$
$= \frac{1}{10}$
Option (3): $\frac{1}{2} - \frac{3}{7} = \frac{7}{14} - \frac{6}{14}$
$= \frac{1}{14}$
Option (4): $\frac{1}{2} - \frac{3}{8} = \frac{4}{8} - \frac{3}{8}$
$= \frac{1}{8}$
Since all the numerators of the fractions are 1, the greater the denominator, the smaller the fraction.
Therefore, $\frac{3}{7}$ is nearest to $\frac{1}{2}$.

10. **(2)**

Number of sets of 2 white beads and 1 black bead
⟶ 14 – 1
= 13
Total number of white beads
⟶ 13 × 2
= 26

11. **(2)**



9 units ⟶ 7.2 m
1 unit ⟶ 7.2 ÷ 9
= 0.8 m
2 units ⟶ 2 × 0.8
= 1.6 m
Length of the second piece
⟶ 1.6 m

12. **(4)**

Amount of money Mrs Tan paid for every $30
⟶ $30 – $5
= $25
Number of sets of $25 in $81
⟶ $81 ÷ $25
= 3 R $6
Price of the jacket before the discount
⟶ (3 × $30) + $6
= $90 + $6
= $96

13. **(3)**

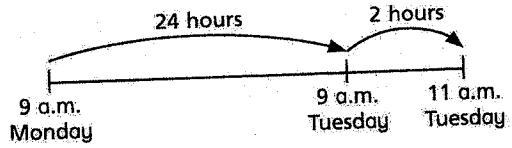
Distance charged as additional 400 m or less
⟶ 2.8 – 1
= 1.8 km
= 1800 m
Number of sets of 400 m or less charged
⟶ 1800 ÷ 400
= 4.5
≈ 5
Amount of taxi fare
⟶ $3.60 + (5 × $0.22)
= $3.60 + $1.10
= $4.70

14. **(3)**

∠QTR = ∠TQR (base angles of an isosceles
= 70° triangle)
∠QRT = 180° – 70° – 70° (sum of angles
= 40° in a triangle)
∠TRS = 90° – 40° (angles of a square)
= 50°
∠RST = (180° – 50°) ÷ 2 (base angles of
= 65° an isosceles triangle)

15. **(3)**

Number of posters printed in 6 hours
⟶ 6 × 1000
= 6000



Duration from 9 a.m. on Monday to 11 a.m. the next day
⟶ 24 + 2
= 26 hours
Since the machine was stopped for an hour after 6 hours of printing, 6000 posters were printed in (6 + 1 =) 7 hours.
Number of sets of 7 hours in 26 hours
⟶ 26 ÷ 7
= 3 R 5 hours

Number of posters printed in 5 hours
$\longrightarrow 5 \times 1000$
$= 5000$
Number of posters printed by 11 a.m. the next day
$\longrightarrow (3 \times 6000) + 5000$
$= 18\,000 + 5000$
$= 23\,000$

Paper 1 Booklet B

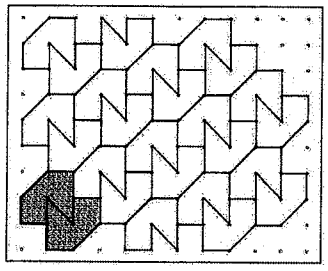
16. 1 002 000

17. $\frac{7}{12} - \frac{1}{8} = \frac{14}{24} - \frac{3}{24}$
$= \frac{11}{24}$

18. Volume of the cube
$\longrightarrow 9 \text{ cm} \times 9 \text{ cm} \times 9 \text{ cm}$
$= \mathbf{729} \text{ cm}^3$

19. $0.3\% = 0.3 \div 100$
$= 0.003$
$= \frac{3}{1000}$

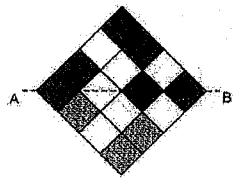
20. (*Accept any possible answers.*)



21. 127°

22. $40 \text{ min} = \frac{40}{60} \text{ h}$
$= \frac{2}{3} \text{ h}$
Distance he travelled
$\longrightarrow 72 \times \frac{2}{3}$
$= \mathbf{48} \text{ km}$

23.



24. Factors of 12 : ①, 2, ③, 4, 6 and 12
Factors of 27 : ①, ③, 9 and 27
The common factors of 12 and 27 are **1** and **3**.

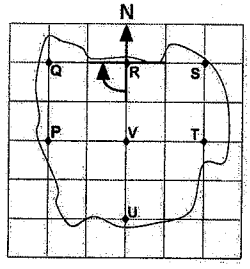
25.

$\frac{7}{12}$ of the figure is shaded.

26. When $k = 4$,
$\frac{15k}{2} - 3k + 1 = \frac{15 \times 4}{2} - 3 \times 4 + 1$
$= \frac{60}{2} - 12 + 1$
$= 30 - 12 + 1$
$= 18 + 1$
$= \mathbf{19}$

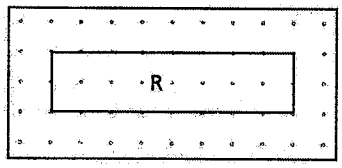
27. (a) North-west

(b)

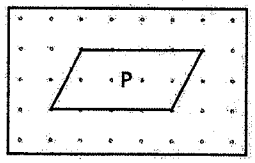


Weili is at landmark **R**.

28. (*Accept any possible answers.*)
(a) Area of trapezium T
⟶ 8 square grids
Area of rectangle R
⟶ 2 × 8
= 16 square grids



(b)



29. Total sum of the three numbers
⟶ 3 × 25
= 75
In order to find the largest possible number, the other two numbers must be the two smallest 2-digit numbers.
Smallest 2-digit number ⟶ 10
Second smallest 2-digit number
⟶ 11
Largest possible number
⟶ 75 – 10 – 11
= **54**

30. Area of triangle CDE
⟶ $\frac{1}{2}$ × 5 × 4
= 10 cm²
Area of triangle ADE
⟶ $\frac{1}{2}$ × 5 × 8
= 20 cm²
Area of shaded triangle BDE
⟶ 10 + 20 – 26
= **4** cm²

Paper 2

1. Total volume of 600 m*l* of orange juice and 1 *l* of apple juice
⟶ 600 m*l* + 1 *l*
= 0.6 *l* + 1 *l*
= 1.6 *l*
Number of sets of 1.6 *l* in 4 *l*
⟶ 4 *l* ÷ 1.6 *l*
= 2.5

2.5 × 0.6 = 1.5 *l*
1.5 *l* of orange juice will be needed.

2. (a) Number of sets of 4 pens in 12 pens
⟶ 12 ÷ 4
= 3

3 × $y = $3*y*
The cost of 12 such pens is **$3*y***.

(b) Cost of a pen ⟶ $*y* ÷ 4
= $\$\frac{y}{4}$

$\$\frac{y}{4}$ – \$2 = $\$(\frac{y}{4} - 2)$
The cost of a ruler is $\$(\frac{y}{4} - 2)$.

3. 100% + 20% = 120%
120% ⟶ 9000 visitors
1% ⟶ 9000 ÷ 120
= 75 visitors
100% ⟶ 100 × 75
= 7500 visitors

There were **7500** visitors in July.

4. Each girl paid \$2.40 more than her share, which means the additional amount of money they paid altogether was for the share of the girl who did not pay.

3 × \$2.40 = \$7.20
The correct amount for each share should be **\$7.20**.

5. Distance between two consecutive light bulbs
⟶ 260 ÷ 4
= 65 cm
Number of light bulbs along the length of the platform
⟶ 18 – 4 – 4
= 10
Number of intervals along the length of the platform
⟶ 10 – 1
= 9

9 × 65 = 585 cm
The length of the platform is **585** cm.

6. (a) Number of customers who chose red ⟶ 6
Number of customers who chose blue ⟶ 30
Number of customers who chose green ⟶ 18

The ratio of the number of customers who chose red to the number who chose blue to the number who chose green is **6 : 30 : 18**.

(b) 6 : 30 : 18 = 1 : 5 : 3
Number of units of blue T-shirts more than red T-shirts ordered
⟶ 5 – 1
= 4
Total number of units
⟶ 1 + 5 + 3
= 9
9 units ⟶ 630 T-shirts
1 unit ⟶ 630 ÷ 9
= 70 T-shirts
4 units ⟶ 4 × 70
= 280 T-shirts

280 more blue than red T-shirts were ordered.

7. (a) ∠CDA = ∠CBA (opposite angles of a
= 51° parallelogram)
∠GEF = ∠FGE (base angles of an
= 35° isosceles triangle)
∠GFE = 180° – 35° – 35° (sum of
= 110° angles in a triangle)
∠GDE = ∠GFE (opposite angles of a
= 110° rhombus)
∠ADG = 180° – 51° – 110° (angles
= **19°** on a straight line)

(b) ∠AGD = 180° – 25° – 19° (sum of
= 136° angles in a triangle)
∠DGE = (180° – 110°) ÷ 2 (base
= 35° angles of an isosceles triangle)
∠AGF = 360° – 136° – 35° – 35°
= **154°** (angles at a point)

8. Number of toys Claire made in the first week
⟶ 8 + 15 + 15
= 38
Number of toys she made from Monday to Sunday
⟶ (5 × 8) + (2 × 15)
= 40 + 30
= 70
Number of toys she needed to make after the first week
⟶ 200 – 38
= 162
Number of weeks she took to make 162 toys
⟶ 162 ÷ 70
= 2 R 22

22 = 8 + 8 + 6

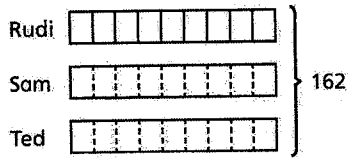
Monday, Tuesday, Wednesday
Day 1 Day 2 Day 3

Claire completed the job on **Wednesday** of the week.

9. 5 km = 5000 m
2 km = 2000 m
Time Alice took to jog 5000 m
⟶ 40 min
Time Alice took to jog 1000 m
⟶ 40 ÷ 5
= 8 min
Time Alice took to jog 2000 m
⟶ 2 × 8
= 16 min
Distance Huda jogged when they passed each other
⟶ 5000 – 2000
= 3000 m

3000 ÷ 16 = 187.5 m/min
Huda's jogging speed was **187.5 m/min**.

10. $\frac{3}{10} = \frac{6}{20}$
$\frac{1}{4} = \frac{5}{20}$
Fraction of stickers Rudi had left
⟶ $1 - \frac{6}{20} - \frac{5}{20}$
= $\frac{9}{20}$



27 units ⟶ 162 stickers
1 units ⟶ 162 ÷ 27
= 6 stickers
3 units ⟶ 3 × 6
= 18 stickers
4 units ⟶ 4 × 6
= 24 stickers

Number of stickers Sam had at first
⟶ 18
Number of stickers Ted had at first
⟶ 24

Ted had more stickers at first.

24 – 18 = 6
He had **6** more stickers.

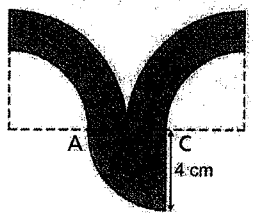
11. (a) Amount of money team A collected
⟶ (15 × $10) + (5 × $15)
= $150 + $75
= $225
Amount of money team B collected
⟶ (11 × $10) + (9 × $15)
= $110 + $135
= $245
Amount of money team C collected
⟶ (8 × $10) + (10 × $15)
= $80 + $150
= $230

Team **B** collected the most money.
They collected **$245**.

(b) Amount of money collected more from washing a big car than a small car
⟶ $15 – $10
= $5
Number of big cars team D washed more than team A
⟶ $30 ÷ $5
= 6

5 + 6 = 11
Team D washed **11** big cars.

12.



(a) AB = BC
= 4 ÷ 2
= 2 cm

2 + 4 = 6 cm
The radius of the large quarter circle is **6 cm**.

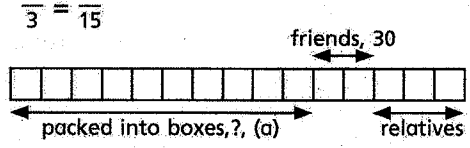
(b) Circumference of each large quarter circle
$\longrightarrow \frac{1}{4} \times 2 \times 3.14 \times 6$
= 9.42 cm
Circumference of each small quarter circle
$\longrightarrow \frac{1}{4} \times 2 \times 3.14 \times 4$
= 6.28 cm

9.42 + 9.42 + 2 + 6.28 + 4 + 6.28 + 6.28 + 2 = 45.68 cm
The perimeter of the shaded figure is **45.68 cm**.

13. Percentage of participants who are boys
$\longrightarrow$ 100% – 45%
= 55%
Percentage of boys more than girls
$\longrightarrow$ 55% – 45%
= 10%
Number of boys more than girls
$\longrightarrow$ 20 – 12
= 8
10% $\longrightarrow$ 8 participants
1% $\longrightarrow$ 8 ÷ 10
= 0.8 participant
55% $\longrightarrow$ 55 × 0.8
= 44 participants

44 participants are boys.

14. $\frac{1}{5} = \frac{3}{15}$
$\frac{2}{3} = \frac{10}{15}$



(a) 2 units $\longrightarrow$ 30 pies
1 unit $\longrightarrow$ 30 ÷ 2
= 15 pies
10 units $\longrightarrow$ 10 × 15
= 150 pies

150 pies were packed into the 18 boxes.

(b) Assume all the pies are packed into boxes of 6.
Total number of pies packed
$\longrightarrow$ 18 × 6
= 108
Difference from the actual number of pies packed
$\longrightarrow$ 150 – 108
= 42
Number of pies in each box of 12 more than in each box of 6
$\longrightarrow$ 12 – 6
= 6
Number of boxes that contained 12 pies
$\longrightarrow$ 42 ÷ 6
= 7

18 – 7 = 11
11 boxes contained 6 pies.

15. (a) Base area of rectangular block Y
⟶ 8 × 10
= 80 cm²
Base area of rectangular block Z
⟶ 15 × 10
= 150 cm²
Base area of rectangular block Z greater than that of rectangular block Y
⟶ 150 – 80
= 70 cm²

1470 ÷ 70 = 21 cm
The height of each block is **21 cm.**

(b) Base area of the box
⟶ 6 × 150
= 900 cm²
900 cm² = 30 cm × 30 cm
Length of each side of the base of the box ⟶ 30 cm
Number of block Y along the length of the box
⟶ 30 ÷ 8
= 3 R 6 cm
≈ 3
Number of block Y along the breadth of the box
⟶ 30 ÷ 10
= 3

3 × 3 = 9
At most, **9** of block Y can be packed into such a box.

16. (a) Fraction of the people who are children ⟶ $\frac{3}{5}$
Fraction of the children who are boys ⟶ $\frac{1}{5}$

$\frac{1}{5} \times \frac{3}{5} = \frac{3}{25}$
$\frac{3}{25}$ of the people attending the barbeque are boys.

(b) Let 2 adults and 3 children be in 1 group.
Number of chicken wings prepared for each group
⟶ (2 × 4) + (3 × 2)
= 8 + 6
= 14
Number of groups
⟶ 210 ÷ 14
= 15

15 × 3 = 45
45 children are attending the barbeque.

17. (a) Fraction of the square made up of the total area of P and Q
$\longrightarrow \frac{1}{9} + \frac{1}{6}$
$= \frac{5}{18}$

$\frac{5}{18}$ of the square $\longrightarrow$ 10 cm^2

$\frac{18}{18}$ of the square $\longrightarrow 18 \times \frac{10}{5}$
$= 36$ cm^2

36 cm^2 = 6 cm × 6 cm
The length of each side of the square is **6 cm**.

(b) Total area of P and S = total area of Q and R
$= \frac{1}{2}$ of the area of the square

$\frac{1}{2} - \frac{1}{9} = \frac{7}{18}$
S is $\frac{7}{18}$ of the square.

18. (a)

Figure Number	1	2	3	4	5
Number of triangles	2	5 (+2)	9 (+3)	14 (+4)	20 (+5)
Number of circles	2	4	7	11	16
Total number of triangles and circles	4	9	16	25	36
	2 × 2	3 × 3	4 × 4	5 × 5	6 × 6

(b) 100 = 10 × 10
10 – 1 = 9
The Figure Number is **9**.

(c) Number of triangles more than circles in Figure 1
$\longrightarrow$ 2 – 2
= 0
Number of triangles more than circles in Figure 2
$\longrightarrow$ 5 – 4
= 1
Number of triangles more than circles in Figure 3
$\longrightarrow$ 9 – 7
= 2
Number of triangles more than circles in Figure 4
$\longrightarrow$ 14 – 11
= 3
Number of triangles more than circles in Figure 5
$\longrightarrow$ 20 – 16
= 4
Figure Number that has 50 more triangles than circles
$\longrightarrow$ 50 + 1
= 51

(51 + 1) × (51 + 1) = 52 × 52
= 2704
The total number of triangles and circles in this figure is **2704**.