

GENERAL Questions – 1 SOLUTIONS: NON-CALCULATOR

1 Work out the following:

a. $18.54 + 0.61 - 5.3 = \mathbf{13.85}$

Read from left to right

b. $3.36 \times 70 = \mathbf{235.2}$

Multiply by 10, then by 7

c. $0.296 \div 4 = \mathbf{0.074}$

Set out division by 4

d. $\frac{3}{4}$ of 480 metres = 360 metres

Find $\frac{1}{4}$ (divide by 4) then multiply by 3

e. $1710 \div 30 = \mathbf{57}$

Divide by 3, then divide by 10

f. $3.58 - 2.73 = \mathbf{0.85}$

g. 60% of 240 cm = **144 cm**

Find 10% then multiply by 6

h. 70% of 150 kg = **105 kg**

Find 10% then multiply by 7

i. $42.8 \times 8 = \mathbf{342.4}$

Set out to multiply by 8

j. $\frac{3}{4} + \frac{1}{16} \rightarrow \frac{12}{16} + \frac{1}{16} \rightarrow \frac{13}{16}$

Change to common denominator of 16

k. $\frac{2}{3} + \frac{5}{6} \rightarrow \frac{4}{6} + \frac{5}{6} \rightarrow \frac{9}{6} \rightarrow \mathbf{1\frac{1}{2}}$

Change to common denominator of 6

l. $3(2p - 3r) + 5p$

$\rightarrow 6p - 9r + 5p \rightarrow \mathbf{11p - 9r}$

m. $10a + 15b \rightarrow \mathbf{5(2a + 3b)}$

2. Time is from:

22 35 on 30th June till 0105 on 1st July.

25 mins till 2300,

then a further hour to midnight,

then one hour and 5 minutes till 01 05

Total is 25 mins + 1 hour + 1 hour + 5 mins

= **2 hours 30 mins.**

3. Journey time for train 1 is:

$14\ 55 - 15\ 00 = 5$ mins

then $15\ 00 - 22\ 29 = 7$ hours 29 min

adding the 5 minutes $7\text{h } 29\text{m} + 5\text{m}$

Total journey time: 7 hours 34 mins.

Add this time onto start time of second train:

$21\ 25 + 7\text{h } 34\text{ mins} = 28\text{ h } 59\text{ mins.}$

This is past 24 hours, so subtract 24 to get:

arrival time = 04 59

4. $1.813 \times 100\ 000\ 000$

= **181,300,000 square kilometres.**

(move decimal point 8 places to right)

5a. $P(\text{silver}) = \frac{9}{36} \rightarrow \frac{1}{4}$

5b. There are now only 35 cars left
and 12 of these are red.

$P(\text{red car}) = \frac{12}{35}$

6. By symmetry

Angle GFD = 33°

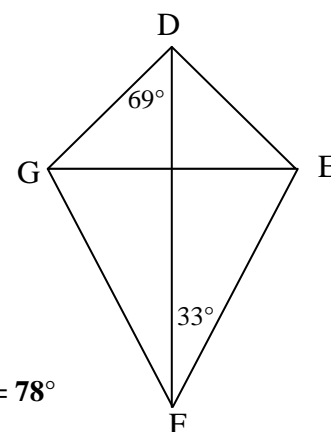
DGF is a triangle,
the angles in it
add up to 180°

$69^\circ + 33^\circ = 102^\circ,$

so remaining angle is

$180^\circ - 102^\circ = 78^\circ$

Hence Angle DGF = 78°

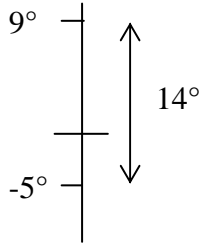


7. 80g of chocolate contain 12 g of fat
40g of chocolate contain 6g of fat

adding

120g of chocolate contain 18g of fat

GENERAL Questions – 1 SOLUTIONS:
NON-CALCULATOR (continued)

8. Drop in temperature
 is $9 - (-5) = 9 + 5 = 14^\circ$
- 

9. First write in full: 7 364 000 000
 Need a number between 1 and 10 i.e. 7.364
 now write in the power of 10 to multiply it by.
 7.364×10^9

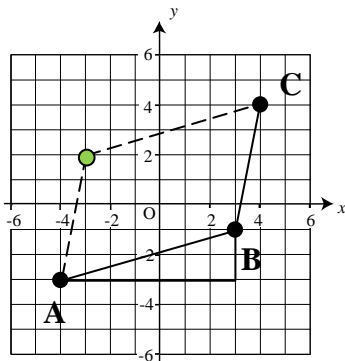
10. a) Range is Highest – lowest: $79 - 8$
Range = 71
 b) Median is the middle when in order.
 A stem and leaf is in order,
 so median is the 11th item
 (10 items – 1 item – 10 items): **52**

11. a) $P(\text{yellow}) = \frac{3}{15} \rightarrow \frac{1}{5}$
 b) Now only 14 sweets left,
 so $P(\text{pink}) = \frac{6}{14} \rightarrow \frac{3}{7}$

12. a) $P(\text{red}) = \frac{2}{6} \rightarrow \frac{1}{3}$
 b) Two green counters added.
 Now there are 8 counters in the bag
 There are 5 counters that are not yellow.
 $P(\text{not yellow}) = \frac{5}{8}$

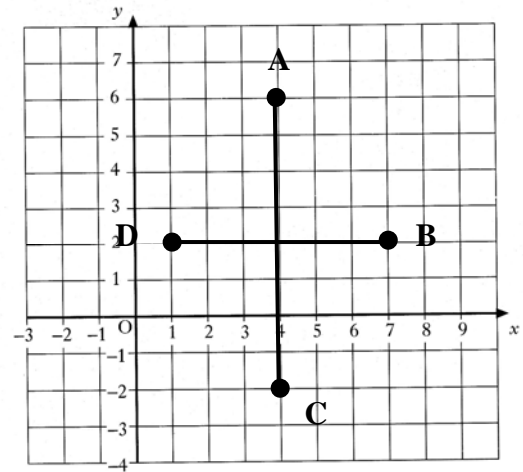
13. A(-4, -3),
 B(3, -1)
 and C(4, 4)

- b) gradient AB
 $= \frac{\text{rise}}{\text{run}} = \frac{2}{7}$



- c) See dotted line
 Coordinates of D are D(-3, 2)

14.

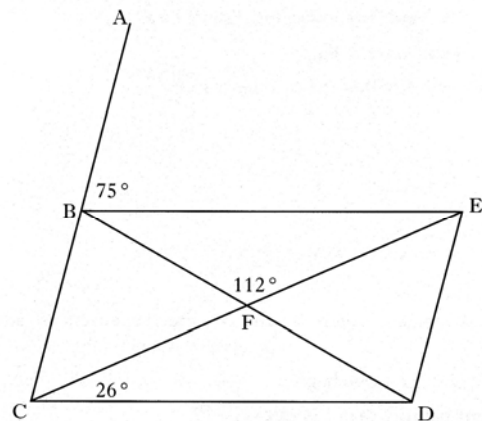


Plot the points A(4, 6) and C(4, -2)
 on this grid.

The diagonals of a rhombus bisect (cut in half)
 each other.

Area of rhombus = $\frac{1}{2} \times \text{diagonal} \times \text{diagonal}$.
 AC = 8 units, so BD must be 6 units
 and in the middle of AC

15.



BCDE is a parallelogram.
 Angle ABE = 75° , angle ECD = 26° ,
 angle BFE = 112°

Calculate the size of angle CBD.

Angle CBD = 75° (corresponding to ABE)
 So angle BCF = $75^\circ - 26^\circ = 49^\circ$

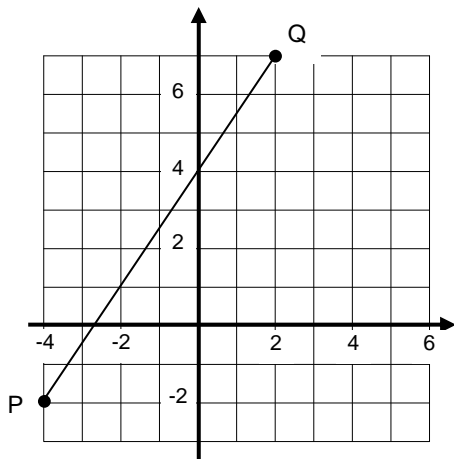
Angle CFB is $180^\circ - 112^\circ = 68^\circ$

Angles in triangle BFC add up to 180°
 So angle CBD = $180^\circ - (49^\circ + 68^\circ)$
 angle CBD = 63° .

There is more than one way
 to arrive at this answer.

GENERAL Questions – 1 SOLUTIONS:
NON-CALCULATOR (continued)

16.



- a) Gradient PQ is: $\frac{\text{rise}}{\text{run}} = \frac{9}{6} \rightarrow \frac{3}{2}$
 y-intercept is 4.
- b) Equation is: $y = \frac{3}{2}x + 4$
 (from formula: $y = mx + c$)

17. a) Complete the table
 adding another 7 bars each time,
 so missing numbers are 15,..., 29, ... , 85

sections (s)	1	2	3	4		12
iron bars (b)	8	15	22	29		85

- b) This is 7 times table with 1 added.
 $b = 7s + 1$
- c) when $b = 176$ then: $176 = 7s + 1$
 $175 = 7s \rightarrow s = 175 \div 7 = 25$ sections

18. a) Complete the table
 Every table added, adds 2 chairs.
 This is the 2 times table with 2 added.

Tables	1	2	3	4		10	T
Chairs	4	6	8	10		22	2T + 2

- b) $C = 2T + 2$