

12 137

13 207000

14 450

15 16

Section 2 : Section B Integers - 10 Questions

16 24

17 30

18 270

19 25

20 136

21 12

22 980

23 30

24 6

25 240

TEST

AMO Grade 3 Mock Test Paper 4

SOLUTIONS

SECTIONS

1. Section A MCQs - 15 Questions
2. Section B Integers - 10 Questions

Section 1 : Section A MCQs - 15 Questions

1

Regrouping strategy

$$\begin{aligned}(826 - 626) + (529 + 201) \\ = 200 + 730 = 930\end{aligned}$$

2

For each place, we have digits $6 + 6 + 9 + 9 = 30$

$$\text{Sum} = 30000 + 3000 + 300 + 30 = 33330$$

So, the hundreds digit is 3.

3

-
A number that is divisible by 7 and 5 must be divisible by 35.

The smallest 4-digit number is 1000

$$1000 \div 35 = 28R20$$

Thus, $29 \times 35 = 1015$ is the smallest four-digit number divisible by 5 and 7.

4

$$12 = 1 \times 2 \times 6 = 1 \times 3 \times 4 = 2 \times 2 \times 3$$

Numbers formed by (1,2,6) - 126, 162, 216, 261, 612, 621 - 6 numbers

Numbers formed by (1,3,4) - 134, 143, 314, 341, 413, 431 - 6 numbers

Numbers formed by (2,2,3) - 223, 232, 322 - 3 numbers

So, there are $6 + 6 + 3 = 15$ such numbers.

5

Perform addition:

$$\begin{array}{r} \text{A} \text{ B} \text{ 0} \\ + \quad \text{A} \text{ B} \\ \hline 7 \text{ 2} \text{ 6} \end{array}$$

It is obvious that $B=6$. Then $B+A=6+A=12$ or $A=6$.

Therefore, the original two-digit number is $726 \div 11 = 66$.

6

The number of coin stacks in 5 layers = $1 + 2 + 3 + 4 + 5 = 15$

Total number of coins required to make 5 layers = $15 \times 8 = 120$

7

One year has 52 weeks and 1 extra day. If next year is a leap year, there will be 52 weeks and 2 extra days.

So, if 15th August this year is Friday, 15th August next year, which is a leap year, will fall on Sunday which is 2 days after Friday.

8

5 pencils and 5 erasers = \$40

1 pencil and 1 eraser = $\$40 \div 5 = \$8$

1 eraser = 1 pencil - \$5 or

1 pencil = 1 eraser + \$5

1 eraser + \$5 + 1 eraser = \$8

1 eraser = $(\$8 - \$5) \div 2 = \$1.50$

1 pencil = $\$1.50 + \$5 = \$6.50$

2 pencils = $\$6.50 \times 2 = \$13$

9

$$154 = 2 \times 7 \times 11$$

All possible solutions to get 154 as a product of 2 numbers are shown below:

Product	2×77	7×22	11×14
Sum	79	29	25

So, the two numbers that give a product of 154 and a sum of 25 are 11 and 14.

The smaller number is 11.

10

An hour has 60 minutes. $60 \div 10 = 6$ groups of 10 minutes.

First 10 minutes he drove 2 km.

Second 10 minutes he drove $2 + 1 = 3$ km, and so on.

Thus, he drove a total of $2 + 3 + 4 + 5 + 6 + 7 = 9 \times 3 = 27$ km in an hour.

11

Consider students 1, 2 and 3 and colours R, G and B:

Student						
1	R	R	G	G	B	B
2	B	G	R	B	R	G
3	G	B	B	R	G	R

As shown, there are 6 different ways in total.

12

Notice that the pattern is $+3, +5, +7, +9, +11, \dots$

Thus, the sequence is:

17, 20, 25, 32, 41, 52, 65, 80, 97, 116, **137**

13

The difference of $230791 - 23791$ is the same as the difference of $230000 - 23000 = 207000$.

14

Length of the square = $perimeter \div 4 = 60 \div 4 = 15$ cm

Length of rectangle = $15 + 15 = 30$ cm

Breadth of rectangle = 15 cm

Thus, the area of the rectangle = $30 \times 15 = 450$ cm²

15

Notice the pattern of strips being cut into: 5 cm, 5 cm, 5 cm, 4 cm, 5 cm, 5 cm, ...

So, one set can be considered as $5 + 5 + 5 + 4 = 19$ cm long

$100 \div 19 = 5R5 \rightarrow 5$ sets of 19 cm and one 5 cm

Thus, there are $5 \times 3 + 1 = 16$ strips which are 5 cm long.

Section 2 : Section B Integers - 10 Questions

16

Consider one face as a $4\text{ cm} \times 4\text{ cm}$ square. There are 16 small squares. We notice that only the middle 4 small cubes have only one side visible and thus have only one side painted.

There are 6 faces in total in a cube, so, there are $6 \times 4 = 24$ small cubes with one side painted.

17

$\frac{3}{5}$ of a pizza = 1 student

3 pizzas = 5 students

$3 \times 6 = 18$ pizzas = $5 \times 6 = 30$ students

18

Two-fourth is the same as half. $\frac{1}{3} + \frac{1}{2} = \frac{5}{6}$ and the remaining one-sixth of the total score is 45.

Thus, the total score = $45 \times 6 = 270$

19

Combined age now = 50

The combined age 10 years ago was $50 - 10 - 10 = 30$

Since David was twice as old as Harry 10 years ago, let Harry's age 10 years ago be 1 unit and David's age 10 years ago be 2 units:

$1\text{ unit} + 2\text{ units} = 3\text{ units} = 30$

Harry was $30 \div 3 = 10$ years old 10 years ago.

Harry's age 5 years from now = $10 + 10 + 5 = 25$ years old

20

The number of digits used to print 1-digit page numbers (page 1 to 9) = 9

The number of digits used to print 2-digit page numbers (page 10 to 99) = $90 \times 2 = 180$

The number of digits used to print the first 99 pages (pages 1 to 99) = $180 + 9 = 189$

$300 - 189 = 111$ digits were used to print the remaining 3-digit page numbers

$111 \div 3 = 37$ 3-digit page numbers starting from page 100

Thus, the book has $99 + 37 = 136$ pages.

21

Notice that any number when divided by 12 can have remainders of 0, 1, 2, 3, ..., 11 but not 12. The numbers that will have the same quotient and remainder when divided by 12 are:

$$12 \times 0 + 0 = 0$$

$$12 \times 1 + 1 = 13$$

$$12 \times 2 + 2 = 26$$

$$12 \times 3 + 3 = 39$$

$$12 \times 4 + 4 = 52$$

...

The last possible number is $12 \times 11 + 11 = 143$ as 11 is the largest possible remainder when divided by 12.

Thus, there are only 12 numbers which will give the same quotient and same remainder when divided by 12.

22

Notice that the 4 same numbers are repeating themselves in the pattern.

Sum of 1 group of 4 numbers: $7 + 13 + 27 + 33 = 80$

Also, $50 \div 4 = 12R2$

So, there are 12 groups of the 4 numbers with the sum of 80 and followed by the first 2 numbers in the group, i.e. 7 and 13.

Thus, sum of first 50 numbers = $80 \times 12 + 7 + 13 = 960 + 20 = 980$.

23

Since there are a total of 60 marbles and the number of yellow marbles is half of the sum of red and blue marbles, the number of yellow marbles = 20 while the total number of red and blue marbles = 40

Also, given that red marbles are less than blue marbles and Box 1 has 10 marbles, Box 1 must have 10 red marbles.

Thus, the remaining 30 marbles are blue.

24

$$k \times 726 = 66 \times 66 = 6 \times 11 \times 6 \times 11$$

$$726 = 6 \times 11 \times 11$$

Thus, k must be 6.

25

The smallest number divisible by 3, 4, 5 and 6 is 60.

Multiples of 60 are 60, 120, 180, **240**, 300, ...

So, the minimum number of apples in the box which has more than 200 apples is **240**.