

12 12.50 am

13 28

14 22

15 60

Section 2 : Section B Integers - 10 Questions

16 40

17 20

18 642

19 207

20 48

21 48

22 9

23 5

24 76

25 49

TEST

AMO Grade 3 Mock Test Paper 2

SOLUTIONS

SECTIONS

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

Section 1 : Section A MCQs - 15 Questions

1

Regrouping strategy:

$$\begin{aligned}(100 - 80) + (90 - 70) + (60 - 40) + (50 - 30) + 20 + 10 \\ = 20 + 20 + 20 + 20 + 20 + 10 = 110\end{aligned}$$

2

Strategy: Working backwards

Since $45 \div 7 = 6R3$, today is 6 weeks and 3 days before Thursday, 12th November.

6 weeks before Thursday was still Thursday and 3 days before Thursday must be Monday.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	-3	-2	-1	0		

3

-

$$40444 + 44044 + 44404 + 44440 = 173332$$

Thus, the digit in the hundreds place is 3.

4

Since $8 \times 8 = 64$, $C = 4$.

To get 4 at the tens place, consider the possible values of A as follows:

A	$\times 8$	+6 regrouped
1	8	14
2	16	22
3	24	30
4	32	38
5	40	46
6	48	54

So, we notice that the only possible values of A can be either 1 or 6. But if $A = 1$, B will also be 1 which is impossible. Thus, $A = 6$.

Since $A = 6$, $B = 5$. Therefore, $A + B + C = 6 + 5 + 4 = 15$.

5

Draw a table to show the possible ages:

Multiple of 6	36	42	48	54	60	66	72	78
Next year	37	43	49	55	61	67	73	79

So, her age four years from now is $54 + 4 = 58$.

6

Adding all three equations we get:

$$3 \blacktriangledown + 3 \blacksquare + 3 \bullet = 63$$

$$\blacktriangledown + \blacksquare + \bullet = 21$$

Using 1st equation + twice of 3rd equation we get:

$$5 \blacktriangledown + 2 \blacksquare + 2 \bullet = 60$$

$$3 \blacktriangledown + 21 \times 2 = 60$$

$$\blacktriangledown = (60 - 42) \div 3 = 6$$

Substituting the value of $\blacktriangledown = 6$, we get $\blacksquare = 10$ and $\bullet = 5$.

Thus, $\blacktriangledown \times \blacksquare \times \bullet = 6 \times 10 \times 5 = 300$.

7

Size of the Square	Number of Squares Comprised of X
1×1	1
2×2	4
3×3	4
4×4	1
Total	10

8

Since the number is a palindrome, the 2nd and 4th digits are the same while the 1st and 5th digits are also the same.

As per the second condition, the 3rd digit is half of the 2nd digit.

Since the sum of 2nd, 3rd and 4th is 15, 2nd and 4th digits are both 6 and the 3rd digit is 3.

Since the sum of the first three digits is 14, the 1st digit is $14 - 6 - 3 = 5$.

Thus, the 5-digit number is 56365.

9

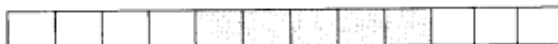
Lamp > Watch > Candle Stand > Basket

The second most expensive item = Watch

10

Since the number of marbles is divisible by 3 and 4, it is also a multiple of 12.

Draw a model with 12 equal units to represent the number of marbles:



$\frac{1}{3}$ of 12 = 1st 4 units represent the marbles distributed to friends on the bus.

$\frac{1}{4}$ of 12 = last 3 units represent the marbles left in the end.

So, the highlighted 5 units are the 20 marbles given to classmates.

1 unit = $20 \div 5 = 4$. Thus, the total number of marbles he had is $4 \times 12 = 48$.

11

4	6	8	2	4	6	X		Y	
---	---	---	---	---	---	---	--	---	--

We notice that the numbers repeat in the pattern 4,6,8,2,4,6,8,2 ...

Thus, $X = 8$, $Y = 4$, $X + Y = 12$.

12

The number of hours from 12.00 pm to 2.00 am is 14 hours.

Since the clock falls behind 5 minutes per hour, it must be behind by $5 \times 14 = 70$ minutes in 14 hours.

Thus, instead of the correct time 2.00 am, the clock will show 70 minutes or 1 hour and 10 minutes before 2.00 am. i.e. 12.50 am.

13

 $100 - 4 = 96$ kg is the total weight when Jack is half of his father's weight.

Let Jack's new weight be 1 unit, his father's weight is then 2 units:

3 units = 96 kg

1 unit = $96 \div 3 = 32$ kg

Jack's actual weight = $32 + 4 = 36$ kg

Father's weight = $32 \times 2 = 64$ kg

Difference between their weights = $64 - 36 = 28$ kg

14

The pattern is $D = A + B - C$.

Thus, the missing value is $45 + 8 - 31 = 22$.

15

10 women stitch 50 toys in 2 hours;

1 woman stitches 5 toys in 2 hours;

1 woman stitches 10 toys in 4 hours;

6 women stitch 60 toys in 4 hours.

Section 2 : Section B Integers - 10 Questions

16

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In 1 hour and 15 minutes=10 km

In 2 hours and 30 minutes=20 km

In 4 hours and 60 minutes=In 5 hours=40 km

17

Since the difference between the number of black and white balls is 20 while the number of white balls and the total number of black items is both 30, there should be $30 - 20 = 10$ black balls and $30 - 10 = 20$ black pebbles.

	White	Black	Total
Balls	30	10	40
Pebbles	20	20	40
Total	50	30	80

Thus, there are $30 + 10 = 40$ balls and hence 40 pebbles.

The total number of all the items is $40 + 40 = 80$.

Since the total number of black items is 30, the total number of white items is $80 - 30 = 50$.

Out of 50 white items, 30 of them are balls and so the remaining 20 are white pebbles.

18

Pages 1 to 9: 9 digits

Pages 10 to 99: $90 \times 2 = 180$ digits ($99 - 10 + 1 = 90$ 2-digit numbers)

Pages 100 to 250: $151 \times 3 = 453$ digits ($250 - 100 + 1 = 151$ 3-digit numbers)

There are $9 + 180 + 453 = 642$ digits.

19

The numbers are increasing in the pattern $+3, +3, +5, +5, +7, +7, +9, +9, +11 \dots$

8th term = $80 + 9 = 89$, 9th term = $89 + 9 = 98$, 10th term = $98 + 11 = 109$

The required sum = $98 + 109 = 207$

20

60 potatoes = 5 dozen potatoes ($60 \div 12 = 5$)

Cost of 5 dozen potatoes = $4 \times \$30 = \$120$

Cost of 1 dozen potatoes = $\$120 \div 5 = \$24$

Cost of 2 dozen potatoes = $\$24 \times 2 = \$48$

21

Strategy: Solve a simpler but similar problem to find a pattern.

2021222324 ... 626364

There are 4 sets of two-digit numbers from 20 to 59 (first 80 digits).

The first set of 2-digit numbers beginning with an odd number ("odd beginners") is

30, 31, 32, 33, 34, 35, 36, 37, 38, 39. Count odd digits only. There are 15. There are 2 sets of two-digit "odd beginners," i.e. 30's and 50's, making 30 odd digits.

The first set of 2-digit numbers beginning with an even number ("even beginners") is 20, 21, 22, 23, 24, 25, 26, 27, 28 and 29. Count odd digits only. There are 5.

There are 2 sets of two-digit "even beginners," i.e. 20's and 40's, making 10 odd digits. Also, from the last 10 digits, 60,61,62,63,64, we have 2 more odd digits.

Thus, there are $30 + 10 + 2 = 42$ odd digits from the 90 digits. Therefore, $90 - 42 = 48$ digits remain.

22

Since 10 small ropes are tied together, there will be 9 knots and thus 1 cm overlapping part for each of the 9 knots. Total length of each rope = $(81 + 9) \div 10 = 9$ cm

23

The product of $99 \times 101 \times 103 \times 105 \times 107$ will have the same ones digit as the product of $9 \times 1 \times 3 \times 5 \times 7$, which is 5.

The product of $100 \times 102 \times 104 \times 106 \times 108$ will have '0' at the ones place since the ones digit in 100 is 0.

Therefore, $10 - 5 = 5$ will be at the ones place of the given expression.

24

The rightmost numbers in each row are triangular numbers:

$$1$$

$$3 = 1 + 2$$

$$6 = 1 + 2 + 3$$

$$10 = 1 + 2 + 3 + 4$$

... ..

The 11th row ends with $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 + 11 = 11 \times 6 = 66$

Thus, the 10th number in the 12th row will be $66 + 10 = 76$.

25