CBSE Class 5 Mathematics

NCERT Solutions

CHAPTER-7

CAN YOU SEE THE PATTERN

1. What should come next?

(a)

(b)

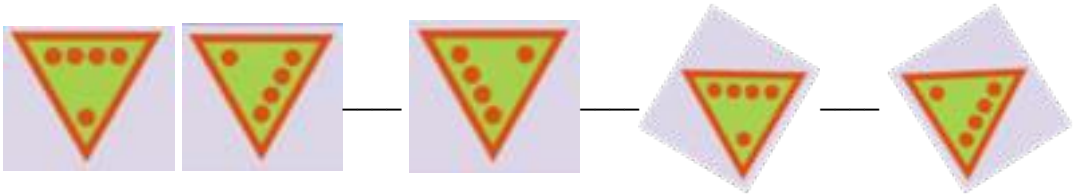
(c)

(d)

Ans. (a)

(b)

(c)



(d)

2. See this pattern

(a)

The rule of the pattern is — turning by 45^0 each time. Which will be the next? Tick the (✓) right one.

Ans.

3. Magic Squares

Do you remember magic triangles? Come now, let's make some magic squares.

Q. Fill this square using all the numbers from 46 to 54.

Ans. In this magic square, the sum of each of the row of numbers (across down and diagonally) is always the same. We have to complete the magic squares, remembering that the numbers in each line are equal to 150.

Clearly:

In 3 rd row: The required number= 150-52-47=150-99=51

In 3 rd column: The required number =150-49-47=150-96=54

In 2 nd row: The required number = 150-46-54= 150-100=50

In 2 nd column: The required number= 150-50-52= 150-102=48

In 1 st row: The required number= 150-18-49=150-97= 53

Therefore, the complete magic square is

Q. Fill this square suing all the numbers from 21 to 29.

Rule: The total of each side is 75.

Ans. Let us fix 26 on the top most left hand side box.

Taking the diagonal of the square, we have

26+25=51 and 75-51=24

Therefore, put 24 at the end of this diagonal.

Fix 22 on the top most-right side box.

Taking the diagonal in which 22 lies, we have

22+25=47 and 75-47=28

Therefore, put 28 at the end of this diagonal.

Clearly,

In 1 st row: The required number =75-(26+22) =75-48=27

In 1 st column: The required number = 75-(26+28) =75-54=21

In 2 nd row: The required number =75- (21+25) =75-46=29

In 2 nd column: The required number =75-(28+24) =75-52=27

Therefore, the complete magic square is as shown below:

3. Fill in the blank spaces in the same way.

(a) 14+.....+.....=34+24+20

(b) .....+ 42+ .....=65+.... +80

(c) 200 + 300 + ... = ... + 400 + ...

(d) ..... + ... + ... = ... + ... + ...

Ans. (a) 14 + 20 + 34 = 34 + 14 +20

(b) 80 + 42 + 65 = 65 + 42 + 80

(c) 200 + 300 + 400 = 300 + 400 + 200

(d) 34 + 29 +47 = 47 + 34 +29

4. Now you try and change these numbers into special numbers:

(a) 28
(b) 132
(c) 273

Ans. (a)

Given number	28
Then turn it back to front	82
Then add them two together It is not a special number	
Now carry on with the number	110
Again turn it back two together	011
Then add them two together	121
121 is the required special number	

(b)

Given number	132
Then turn it back to front	231

Then add them two together	363
363 is the required special number	

(c)

Given number	273
Then turn it back to front	372
Then add them two together	645
It is not a special number	
Now carry on with the number	645
Again turn it back two together	546
Then add them two together	1191
It is not a special number	
Now carry on with the number	1191
Again turn it back two together	1911
Then add them two together	3102
It is not a special number	
Now carry on with the number	3102
Again turn it back two together	2013
Then add them two together	5115
5115 is the required special number	

5. Choose any 3 × 3 box from a calendar and find the total in the same way. Play this game with your family.

Ans. Let us mark a 3 × 3 box (9 dates) on the calendar and see some magic.

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Take the smallest number: 2

Add 8 to it: +8

10

Multiply it by 9 × 9

Total 90

6. Take any number. Now multiply it by 2, 3, ... at every step. Also add 3 to it at each step. Look at the difference in the answer. Is it the same at every step?

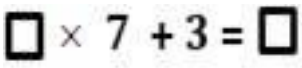
12 × 2 + 3 = 27

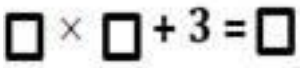
12 × 3 + 3 = 39

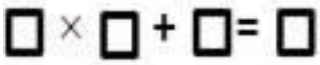
12 × 4 + 3 = 51

12 × 5 + 3 = 63

$12 \times \square + 3 = \square$







Ans. Filling in the blank boxes, we have

12 × 6 + 3 = 75

12 × 7 + 3 = 87

12 × 8 + 3 = 99

12 × 9 + 3 = 111

7. Look at the numbers below. Look for the pattern. Can you take it forward?

(9 – 1) ÷ 8 = 1

(98 – 2) ÷ 8 = 12

(987 – 3) ÷ 8 = 123

(9876 – 4) ÷ 8 = ____

(98765 – 5) ÷ 8 = ____

(____–__) ÷ 8 = ____

(____–__) ÷ 8 = ____

Ans. Yes, the given pattern can be taken forward as under:

(9 – 1) ÷ 8 = 1

(98 – 2) ÷ 8 = 12

(987 – 3) ÷ 8 = 123

(9876 – 4) ÷ 8 = 1234

(98765 – 5) ÷ 8 = 12345

(987654 – 6) ÷ 8 = 123456

(9876543 – 7) ÷8 = 1234567

8. Smart Adding

1 +2 +3 +4 +5 +6 +7 +8 +9 +10 = 55

11+12+ .. + .. + .. + .. +.. + .. + .. +20 = 155

21+ .. + .. + .. + .. + .. + .. + .. + .. +30 = …

31+ .. + .. + .. + .. + .. + .. + .. + .. +40 = …

41+ .. + .. + .. + .. + .. + .. + .. + .. +50 = …

51+ .. + .. + .. + .. + .. + .. + .. + .. +60 = 555

61+ .. + .. + .. + .. + .. + .. + .. + .. +70 = …

Ans. 1 +2 +3 +4 +5 +6 +7 +8 +9 +10 = 55

11+12+13 +14 +15 +16 +17 +18 +19 +20 = 155

21+22 +23 +24 +25 + 26+27 +28 +29 +30 = 255

31+32 +33 +34 +35 +36 +37 +38 +39+40 = 355

41+42 +43 +44 +45 +46 +47 +48+49 +50 = 455

51+52 +53 +54 +55 +56 +57 +58+59 +60 = 555

61+62+63+64 +65 +66 +67 +68 +69 +70 = 655

9. Take the first two odd numbers, now add the, see what you get.

Now, at every step, add the next odd number.

1 + 3 = 4 = 2 × 2

1 + 3 + 5 = 9 = 3 × 3

1 + 3 + 5 + 7 = 16 = 4 × 4

1 + 3 + 5 + 7 + 9 = □

1 + 3 + 5 + 7 + 9 + 11 = □ = □ × □

1 + 3 + 5 + 7 + 9 + 11 + 13 = □ × □

How far can you go on?

Ans. Let us complete it.

1 + 3 + 5 + 7 +9 = 25 = 5 × 5

1 + 3 + 5 + 7 + 9 + 11 = 36 = 6 × 6

1 + 3 + 5 + 7 + 9 + 11 + 13 = 49 = 7 × 7

10. Secret Numbers

Banno and Vinod were playing a guessing game by writing clues about a secret number. Each tried by writing clues about a secret number. Each tried to guess the other's secret number from the clues.

Can you guess their secret numbers?

(a) It is larger than half of 100.

Ans. (a) It is larger than half of 100 means > 50.

(b) It is more than 6 tens and less than 7 tens.

Ans. (b) It is more than 6 tens and less than 7 tens it lies between 60 and 70.

(c) The tens digit is one more than he one's digit.

Ans. (c) The tens digit is one more than one's digit is 6-5 =5.

(d) Together the digits have a sum of 11.

Ans. (d) Together the digits have the sum of 11, so the number is 65.

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11. Write a set of clues for a secret number of your own. Then give it to a friend to guess your secret answer.

Ans. A set of clues to find secret numbers are:

____ It is larger than half of 100.

It is more than 7 tens and less than 8 tens.

The tens digit is one less than the one's digit.

Together the digits have a sum of 15.

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12. (a) Ask your friend-Write down his age. Add 5 to it. Multiply the sum by 2. Subtract 10 from it. Next divide it by 2. What do you get?

Ans.(a) Age: 7

Add 5 to it: 7 + 5 =12

Multiply the sum by 2= 12 × 2 =24

Subtract 10 from it = 24 -10 =14

Divide it by 2 =14/2= 7

My friend got the answer as his age. So, he is surprised.

(b) Take a number ☐

Double it ×2= ☐ ☐

Multiply it by 5 ☐ × 5 = ☐

Divide your answer by 10= ☐ ÷ 10 = ☐

Ans. (b) Take a number as 5(say)

Double it 5 × 2 = 10

Multiply by 5 = 10 × 5 = 50

Divide your answer by 10 = 50 ÷ 10 = 5

Thus, we got the supposed answer.

(c) Look at this pattern of number and take it forward.

1 = 1 × 1

121 = 11 × 11

12321 = 111 × 111

1234321 = ?

Ans. (c) Taking the pattern forward, we have

1234321 = 1111 × 1111.