

CLASS NOTES

Class: V

Topic: Ch.- 7







Subject: Mathematics







Can You See The Pattern?







Numbers and Numbers

Q8. Fill in the blank spaces in the same way.

RULE: comparing LHS and RHS

(a)  +  +  =  +  + 

(b)  +  +  =  +  + 

(c)  +  +  =  +  + 

Q9.PALINDROMES(Left to Right-same to same)

Special words,phrase,numbers or sequence that reads the same backwards as forward.

Now let's use words in a special way .

N O L E M O N S N O M E L O N
S T E P N O T O N P E T S

Change these numbers into special numbers.












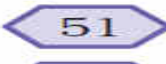




















$$\begin{array}{r}
 \text{a) } 82 \\
 + 28 \text{ (Reverse)} \\
 \hline
 110 \\
 + 011 \text{ (Reverse)} \\
 \hline
 121 \text{ (Palindrome)} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \text{b) } 132 \\
 + 231 \text{ (Reverse)} \\
 \hline
 363 \text{ (Palindrome)} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \text{c) } 273 \\
 + 372 \text{ (Reverse)} \\
 \hline
 645 \\
 + 546 \text{ (Reverse)} \\
 \hline
 1191 \\
 + 1911 \text{ (Reverse)} \\
 \hline
 3102 \\
 + 2013 \text{ (Reverse)} \\
 \hline
 5115 \text{ (Palindrome)} \\
 \hline
 \end{array}$$

Some more Number Patterns

Q10.(i) Take any number. Now multiply it by 2, 3, 4 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	x	 2	+	 3	=	 27
 12	x	 3	+	 3	=	 39
 12	x	 4	+	 3	=	 51
 12	x	 5	+	 3	=	 63
 12	x	 6	+	 3	=	 75
 12	x	 7	+	 3	=	 87
 12	x	 8	+	 3	=	 99
 12	x	 9	+	 3	=	 111

- Check difference in the answer, $39 - 27 = 12$, $51 - 39 = 12$, $63 - 51 = 12$,
- $75 - 63 = 12$, $87 - 75 = 12$, $99 - 87 = 12$, $111 - 99 = 12$.
- Difference in the answer are same at every step.

(ii) Look at the numbers below. Look for the pattern. Can you take it forward?

$$\begin{aligned} (9 - 1) \div 8 &= 1 \\ (98 - 2) \div 8 &= 12 \\ (987 - 3) \div 8 &= 123 \\ (9876 - 4) \div 8 &= 1234 \\ (98765 - 5) \div 8 &= 12345 \\ (987654 - 6) \div 8 &= 123456 \\ (9876543 - 7) \div 8 &= 1234567 \\ (98765432 - 8) \div 8 &= 12345678 \\ (987654321 - 9) \div 8 &= 123456789 \end{aligned}$$

Q11. Smart Adding

$$\begin{aligned} 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 &= 55 \\ 11 + 12 + 13 + 14 + 15 + 16 + 17 + 18 + 19 + 20 &= 155 \\ 21 + 22 + 23 + 24 + 25 + 26 + 27 + 28 + 29 + 30 &= 255 \\ 31 + 32 + 33 + 34 + 35 + 36 + 37 + 38 + 39 + 40 &= 355 \\ 41 + 42 + 43 + 44 + 45 + 46 + 47 + 48 + 49 + 50 &= 455 \\ 51 + 52 + 53 + 54 + 55 + 56 + 57 + 58 + 59 + 60 &= 555 \\ 61 + 62 + 63 + 64 + 65 + 66 + 67 + 68 + 69 + 70 &= 655 \end{aligned}$$

Difference in the answer are same i.e. 100 at every step.

Q12. Fun with Odd Numbers.

Take the first two odd numbers. Now add them, see what you get. Now, at every step, add the next odd number. How far can you go on?

$$\begin{aligned} 1 + 3 &= 4 = 2 \times 2 \\ 1 + 3 + 5 &= 9 = 3 \times 3 \\ 1 + 3 + 5 + 7 &= 16 = 4 \times 4 \\ 1 + 3 + 5 + 7 + 9 &= 25 = 5 \times 5 \\ 1 + 3 + 5 + 7 + 9 + 11 &= 36 = 6 \times 6 \\ 1 + 3 + 5 + 7 + 9 + 11 + 13 &= 49 = 7 \times 7 \end{aligned}$$

Q13.(Secret Number) What is my secret number?

i) It is larger than half of 100

- It is more than 6 tens and less than 7 tens

- **The tens digit is one more than the ones digit**
- **Together the digits have a sum of 11**
- **Solution:-**
- It is larger than half of 100, i.e. number > 100
- It is more than 6 tens and less than 7 tens = so, number lies between 70 and 60
- The tens digit is one more than the ones digit = $6 - 1 = 5$
- Together the digits have a sum of $11 = 6 + 5 = 11$
- Therefore the number is 65.

(ii) It is smaller than half of 100

- **It is more than 4 tens and less than 5 tens**
- **The tens digit is two more than the ones digit**
- **Together the digits have a sum of 6**
- **Solution:-**
- It is smaller than half of 100 = number > 100
- It is more than 4 tens and less than 5 tens = number lies between 40 and 50
- The tens digit is two more than the ones digit = $4 - 2 = 2$
- Together the digits have a sum of $6 = 4 + 2 = 6$
- Therefore the number is 42

Q14. Number Surprises

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

- Solution:-
- Let us assume the age be 11,
- Then, adding 5 to it we get = 16
- Multiply by 2 we get = 32
- Subtract from 10 we get = 22
- Divided by 2 we get = 11
- Yes, my friend was really surprised.

(b)

☆ Take a number 2

☆ Double it $2 \times 2 = 4$

☆ Multiply by 5 $4 \times 5 = 20$

☆ Divide your answer by 10 $20 \div 10 = 2$

(c) Do it yourself

d) Look at this pattern of numbers and take it forward.

$$1 = 1 \times 1$$

$$121 = 11 \times 11$$

$$12321 = 111 \times 111$$

$$1234321 = ?$$

Solution:-

$$1 = 1 \times 1$$

$$121 = 11 \times 11$$

$$12321 = 111 \times 111$$

$$1234321 = 1111 \times 1111$$

$$123454321 = 11111 \times 11111$$

$$12345654321 = 111111 \times 111111$$

$$1234567654321 = 1111111 \times 1111111$$

$$1234567654321 = 1111111 \times 1111111$$

$$1234567654321 = 1111111 \times 1111111$$