Classwork 16

Multiplication by 10 and 100

When you multiply a number by 10, the value of each of its digits increases ten times. Hence, the value of the whole number increases ten times.

Example: 46 x 10 = 46 tens = 460

When you multiply a number by 100, the value of each of its digits increases hundred times. Hence, the value of the whole number increases hundred times.

Example: 46 x 100 = 46 hundreds = 4600

NEW MATERIAL

1.

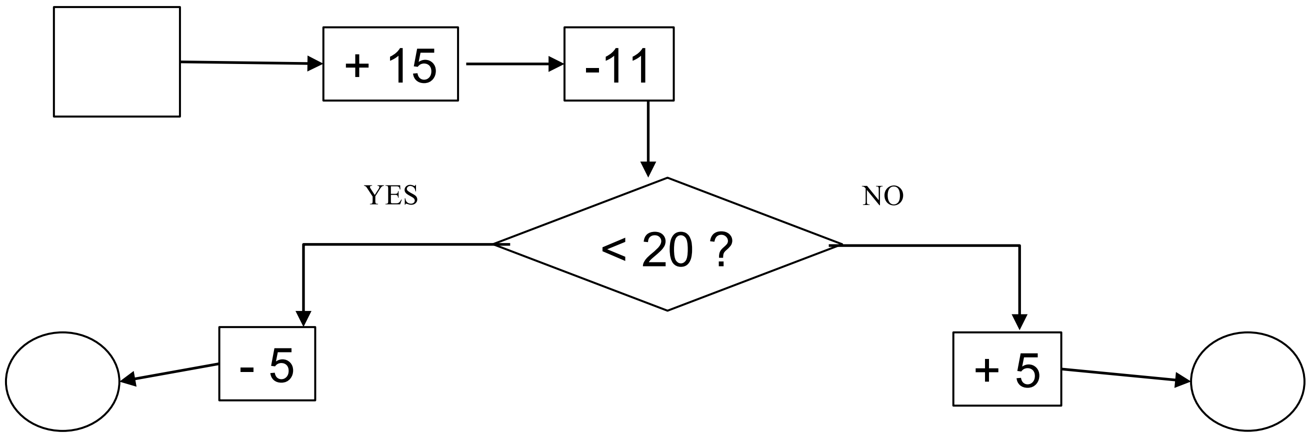
Calculate:

$4 \times 10 =$	$10 \times 10 =$	$55 \times 10 =$
$2 \times 10 =$	$25 \times 10 =$	$700 \times 10 =$
$22 \times 100 =$	$1 \times 100 =$	$0 \times 100 =$

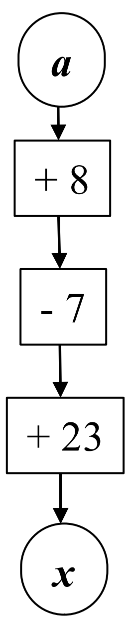
Three important characteristics of the algorithm:

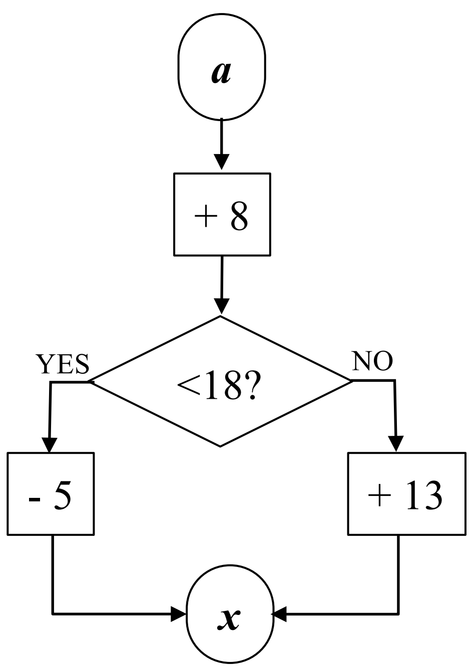
- It should be **finite**: If your algorithm never ends when you try to solve a problem, then it is useless
- It should have well **defined instructions**: Each step of the algorithm has to be precisely defined; the instructions should be unambiguously specified for each case.
- It should be **effective**: The algorithm should solve the problem it was designed to solve in the most optimal way.

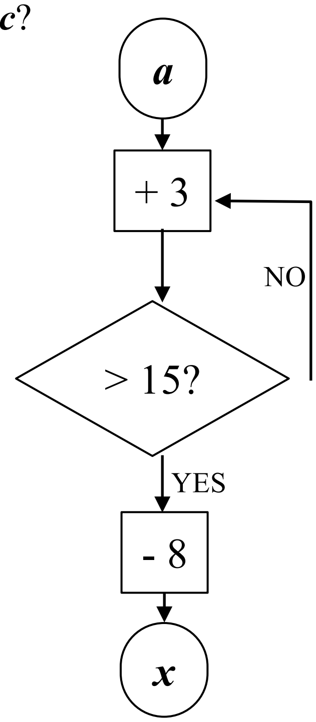
2. In a 1st box write any number between 10 and 20 in the square. Then, do the calculations according to the algorithm.



Which of those algorithms are ***linear, or branching, or cyclic***?







a	3	9	15
x			

a	3	9	15
x			

a	3	9	15
x			

REVIEW

3. Remove parenthesis, simplify expression and calculate where possible:

a) 26 + (32 – 16) = ____

b) (247 – 123) + (53 – 23) = ________________________________

c) 93 + (18 – 11) – 35 = __________________________________

d) (72 + 13) – 42 – (94 + 76) = ______________________________

e) (a + b) – (c + d) = ____

f) a - (b – c + d) = ____

g) a + (b – c) + d = ____

4.

a) Using a ruler, draw a 6cm long line segment [AB]. Find a middle point of the segment and name it by letter O.

b) Draw a straight line (CD), which will intersect line segment [AB] under a right angle (use a right angle template or triangle ruler). Name all angles you got.

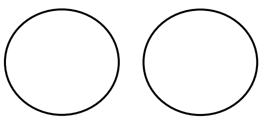
c) Find rays [OC) and [OD)

d) Remember the differences between straight line, line segment and ray.

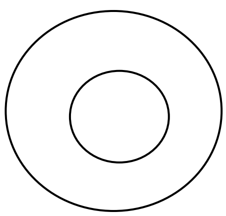
5. Figure out which mathematical operation you need to insert instead of □ to make equalities correct.

0 □ a = a	a □ a = 0	a + b □ b = a
a □ 0 = a	0 □ 0 = 0	a – b □ b = a
2 □ 2 □ 2 □ 2= 8	2 □ 2 □ 2 □ 2 = 8	3 □ 4 = 12

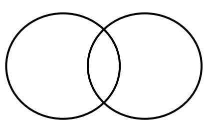
6. Connect each pair of circles with the correct pair of sets.



- set of cactus
- set of plants



- set of plants with red flowers
- set of plants with thorns



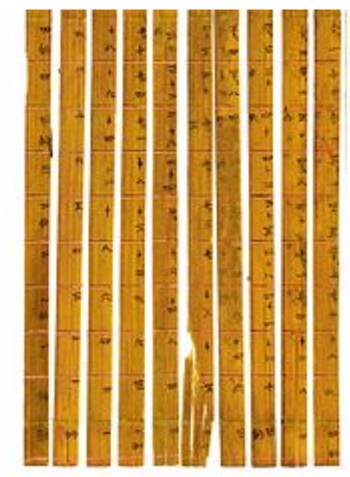
- set of cactus
- set of roses

Did you know …

In mathematics, a **multiplication table** (sometimes, less formally, a **times table**) is a table used to define results of multiplication operations.

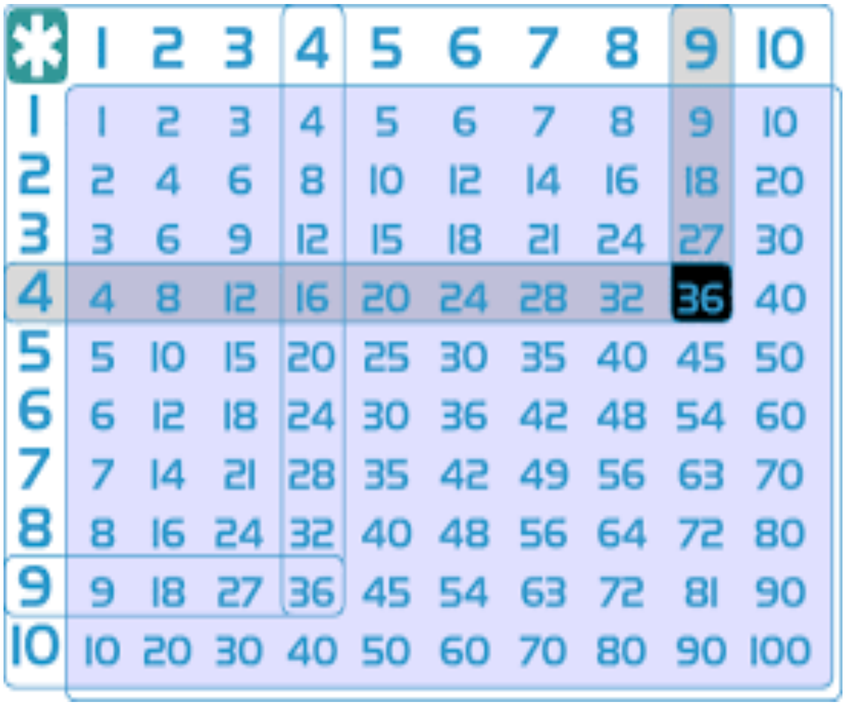
The decimal multiplication table was traditionally taught as an essential part of elementary arithmetic around the world, as it lays the foundation for arithmetic operations with base-ten numbers.

Many educators believe it is necessary to memorize the table up to 9 × 9.

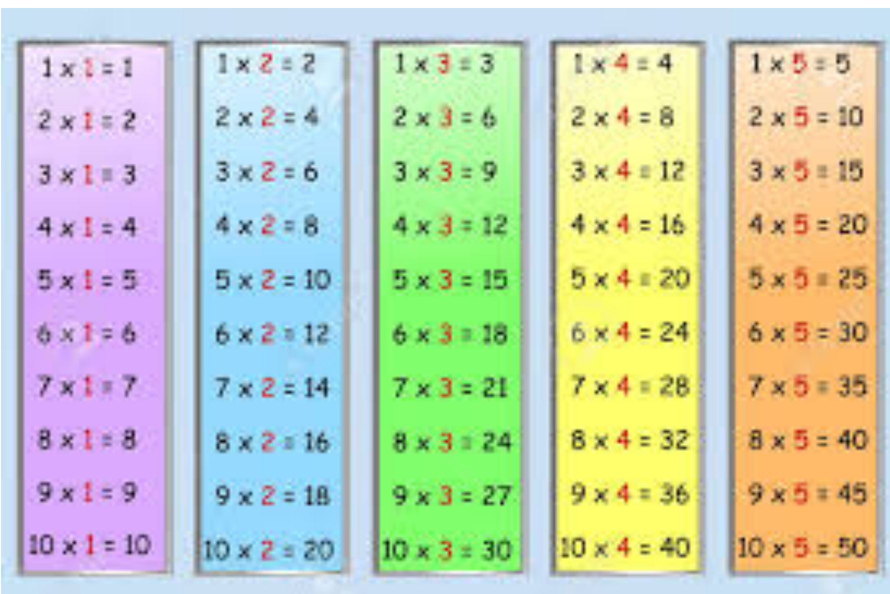


The oldest known multiplication tables were used by the Babylonians about 4000 years ago. However, they used a base of 60. The oldest known tables using a base of 10 are the Chinese decimal multiplication table on bamboo strips dating to about 305 BC, during China's Warring States period.

The multiplication table is sometimes attributed to the ancient Greek mathematician Pythagoras (570-495 BC). It is also called the Table of Pythagoras in many languages (for example French, Italian and at one point even Russian), sometimes in English



*	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100



1 x 1 = 1	1 x 2 = 2	1 x 3 = 3	1 x 4 = 4	1 x 5 = 5
2 x 1 = 2	2 x 2 = 4	2 x 3 = 6	2 x 4 = 8	2 x 5 = 10
3 x 1 = 3	3 x 2 = 6	3 x 3 = 9	3 x 4 = 12	3 x 5 = 15
4 x 1 = 4	4 x 2 = 8	4 x 3 = 12	4 x 4 = 16	4 x 5 = 20
5 x 1 = 5	5 x 2 = 10	5 x 3 = 15	5 x 4 = 20	5 x 5 = 25
6 x 1 = 6	6 x 2 = 12	6 x 3 = 18	6 x 4 = 24	6 x 5 = 30
7 x 1 = 7	7 x 2 = 14	7 x 3 = 21	7 x 4 = 28	7 x 5 = 35
8 x 1 = 8	8 x 2 = 16	8 x 3 = 24	8 x 4 = 32	8 x 5 = 40
9 x 1 = 9	9 x 2 = 18	9 x 3 = 27	9 x 4 = 36	9 x 5 = 45
10 x 1 = 10	10 x 2 = 20	10 x 3 = 30	10 x 4 = 40	10 x 5 = 50

Roman numerals originated, as the name might suggest, in ancient Rome. There are seven basic symbols: I, V, X, L, C, D and M. The first usage of the symbols began showing up between 900 and 800 B.C.

Seven different letters: I, V, X, L, C, D and M represent 1, 5, 10, 50, 100, 500 and 1,000. We use these seven letters to make thousands of different numbers.

Roman numerals are not without flaws. For example, there is no symbol for zero, and there is no way to denote fractions.

1 = I	8 = VIII	60 = LX
2 = II	9 = IX	70 = LXX
3 = III	10 = X	80 = LXXX
4 = IV	20 = XX	90 = XC
5 = V	30 = XXX	100 = C
6 = VI	40 = XL	500 = D
7 = VII	50 = L	1000 = M

Forming numbers:

VI = 6 (5 + 1 = 6)

LXX = 70 (50 + 10 + 10 = 70)

MCC = 1200 (1000 + 100 + 100 = 1200)

IV = 4 (5 – 1 = 4)

XC = 90 (100 – 10 = 90)

CM = 900 (1000 – 100 = 900)

How would Roman write a) 18 ______________ b) 273 _________________?

Write Roman Numerals as a normal numbers

a) XXIX ___________ b) CLX ________________ c) CCCII ___________________