Singapore Math

Developing conceptual understanding of mathematics

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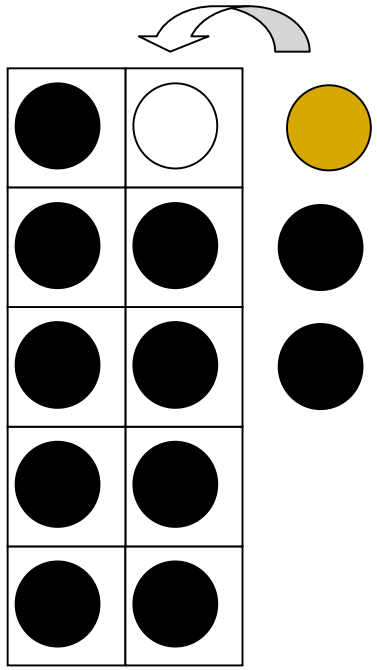
Addition with regrouping (grade 1)

$$9 + 3 = 10 + 2$$

Take 1 from the 3 and add it to 9 to make 10.

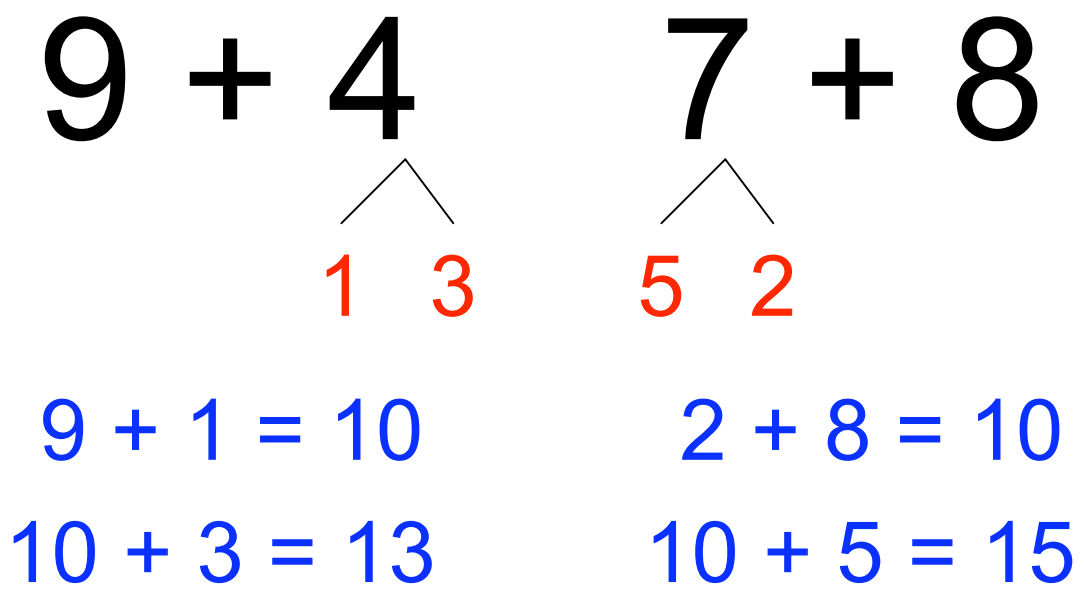


Composing a higher value unit is the basis for regrouping in addition.

Addend decomposition method (grade 1)

Add 9 + 4 by making 10 first.

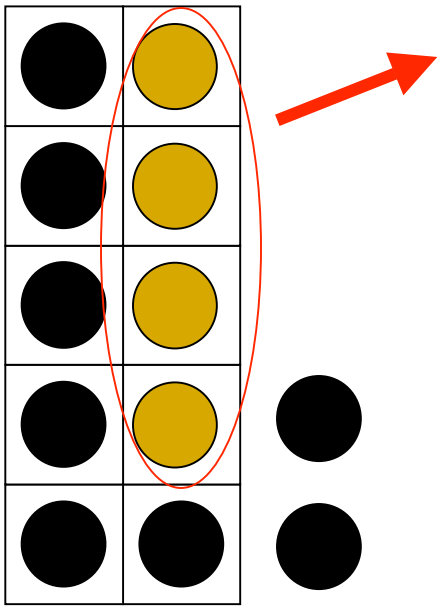
Students learn to manipulate numbers to their advantage, internalize mathematical properties, and go beyond counting.



Subtraction with regrouping (grade 1)

$$12 - 4 = 6 + 2$$

Decompose the 12 into 10 and 2, subtract 4 from the 10 and then add the 2.



Decomposing a higher value unit is the basis for subtraction with regrouping.

Minuend decomposition method (grade 1)

When subtracting with regrouping, think of the complement of the subtrahend (to make 10) and then add the ones from the minuend.

minuend subtrahend

12 - 4

10 2

15 - 6 4 + 5 = 9

13 - 8 2 + 3 = 5

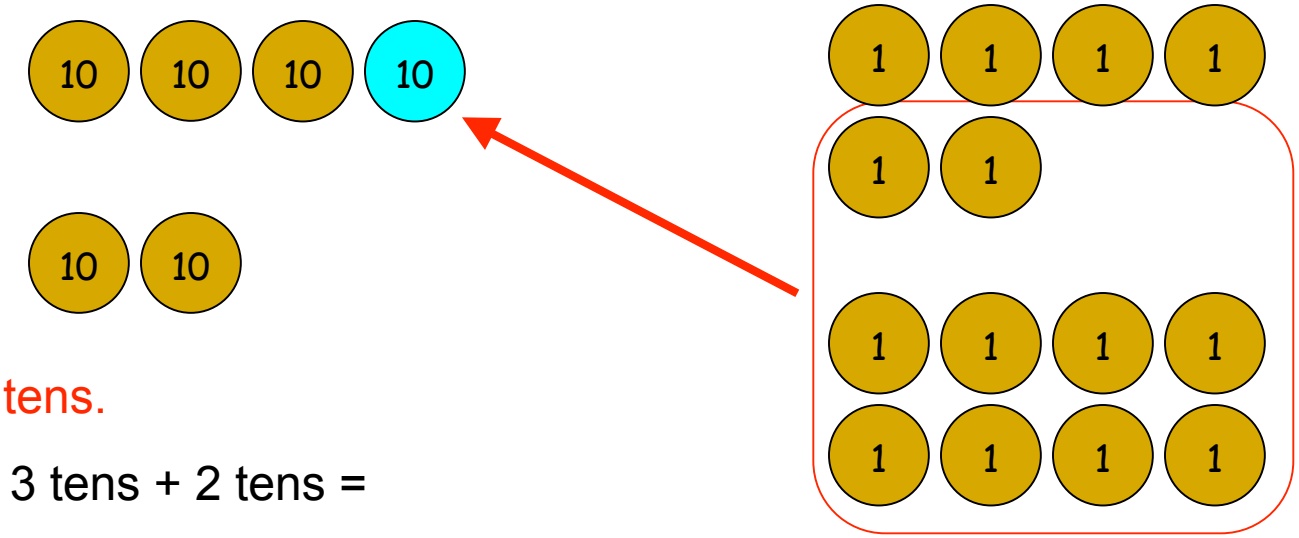
11 - 3 7 + 1 = 8

10 - 4 = 6

6 + 2 = 8

Addition with renaming

36 + 28



Add the tens.

1 tens + 3 tens + 2 tens = 6 tens

Add the ones.

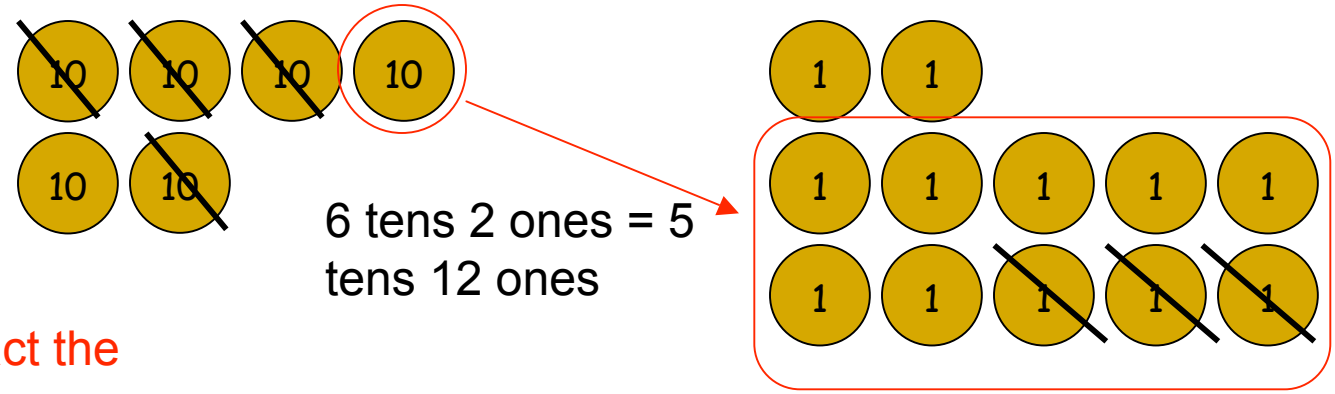
6 ones + 8 ones = 14 ones

14 ones = 1 ten and 4 ones

$$\begin{array}{r} {\scriptstyle 1} \\ 36 \\ +\ 28 \\ \hline 64 \end{array} \qquad \begin{array}{r} {\scriptstyle 1} \\ 36 \\ +\ 28 \\ \hline 4 \end{array}$$

Subtraction with renaming

62 - 43



Subtract the tens.

5 tens - 4 tens = 1 ten

$$\begin{array}{r} {\scriptstyle 5\ 12} \\ \cancel{6}\cancel{2} \\ -\ 43 \\ \hline 19 \end{array}$$

Subtract the ones.

12 ones - 3 ones = 9 ones

$$\begin{array}{r} {\scriptstyle 5\ 12} \\ 6\cancel{2} \\ -\ 43 \\ \hline 9 \end{array}$$

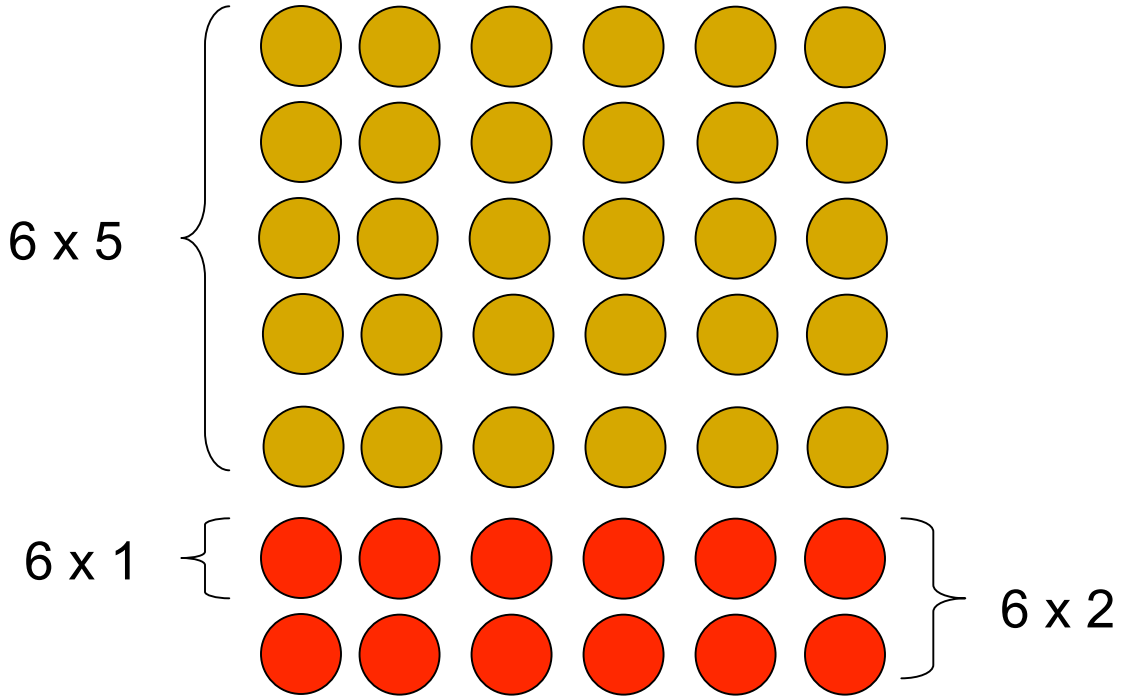
Multiplication facts

6 x 6 = 30 + 6

5 1

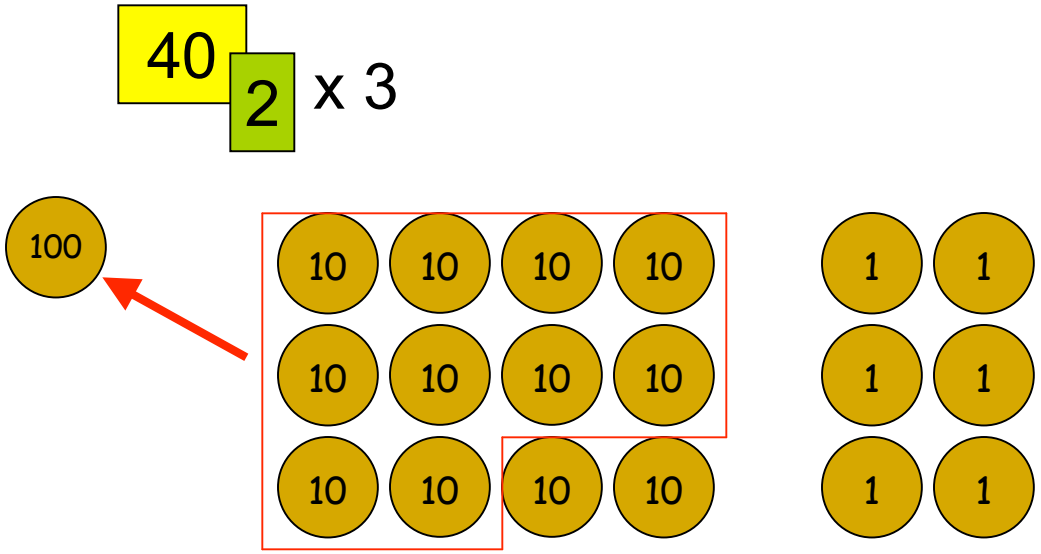
6 x 7 = 30 + 12

5 2



Important mathematical properties and algebraic manipulation are taught informally.

Multiplication algorithm



42×3

$= 40 \times 3 + 2 \times 3$

Multiply the ones by 3.

$$\begin{array}{r} 4\ 2 \\ \times\ 3 \\ \hline 6 \end{array}$$

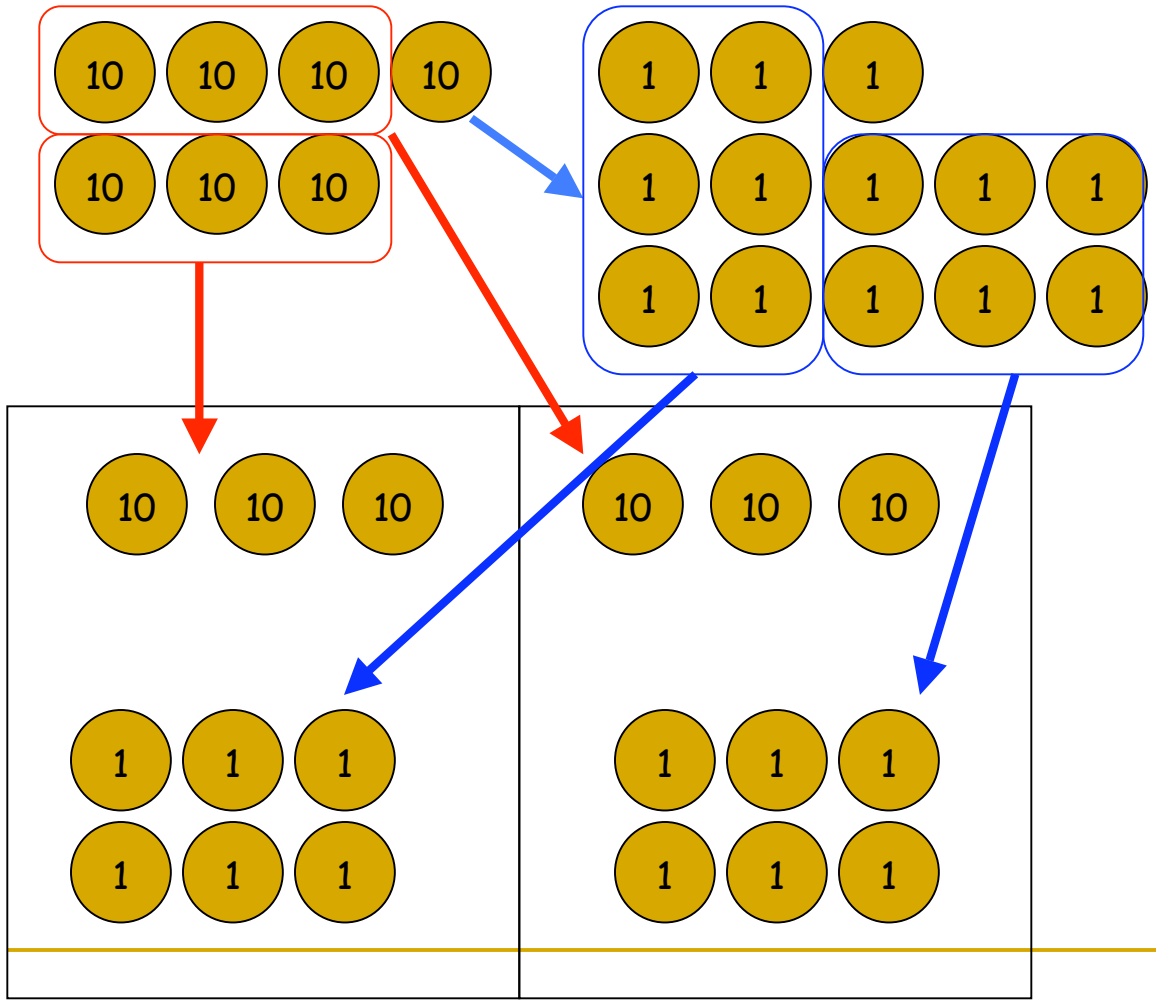
Multiply the tens by 3.

$$\begin{array}{r} 4\ 2 \\ \times\ 3 \\ \hline 1\ 2\ 6 \end{array}$$

Division algorithm

Partitive (equal share) division

$73 \div 2 = 70 \div 2 + 3 \div 2$



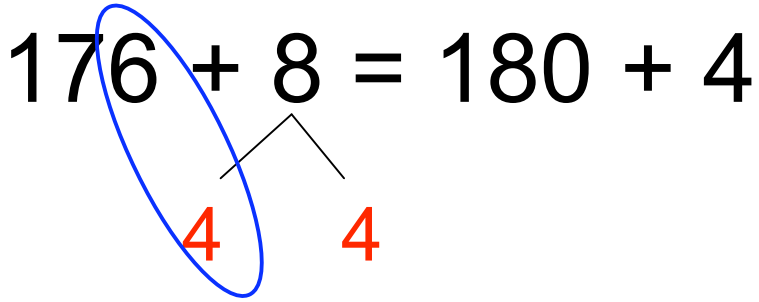
Divide the tens by 2.

Divide the ones by 2.

$$\begin{array}{r} 36\ R\ 1 \\ 2\overline{)73} \\ \underline{6} \\ 13 \\ \underline{12} \\ 1 \end{array}$$

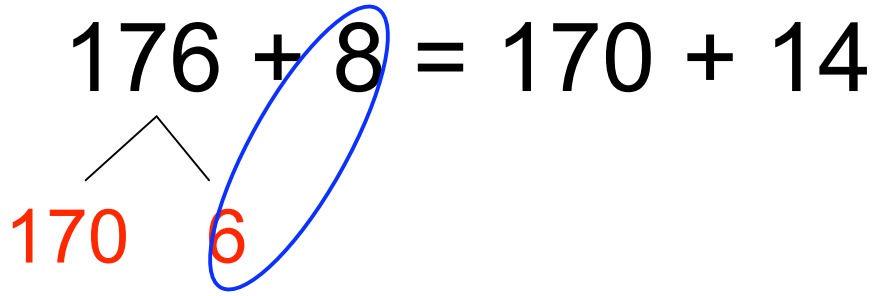
Methods for mental addition

- Make a 10.



Methods for mental addition

- Use addition facts and rename.



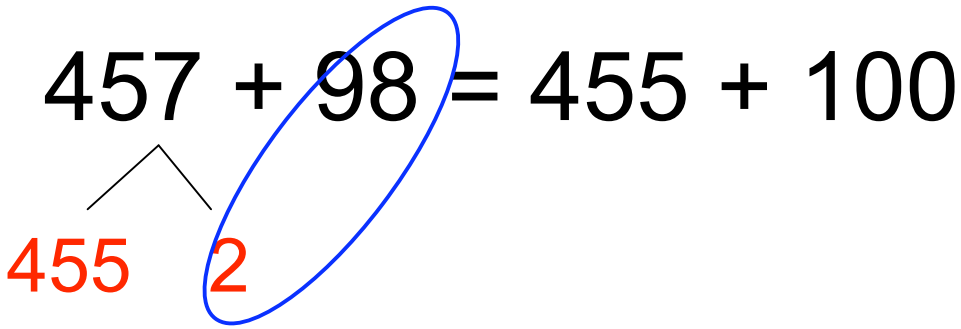
Methods for mental addition

- Add the tens then the ones.

$$53 + 34 = 53 + 30 + 4$$

Methods for mental addition

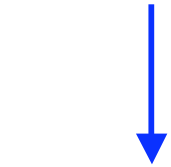
- Make 100 (numbers close to 100)



Methods for mental addition

- Add 100 and subtract the difference.

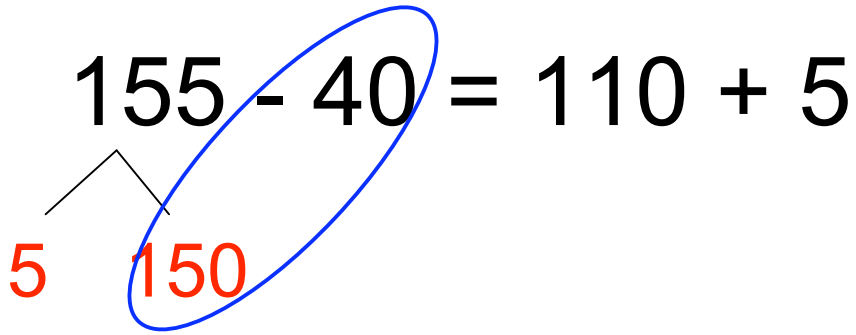
$$457 + 98 = 457 + 100 - 2$$



100 - 2

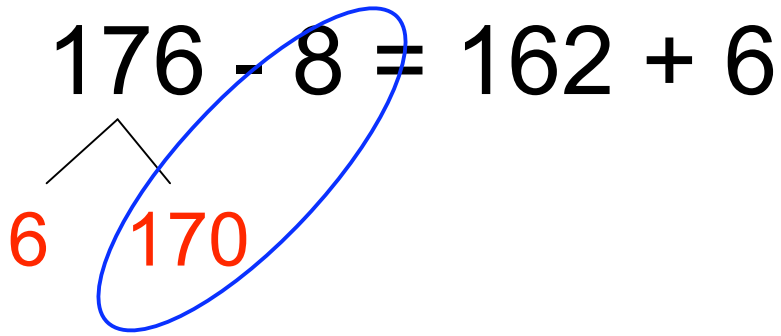
Methods for mental subtraction

- Subtract the same place values (no renaming)



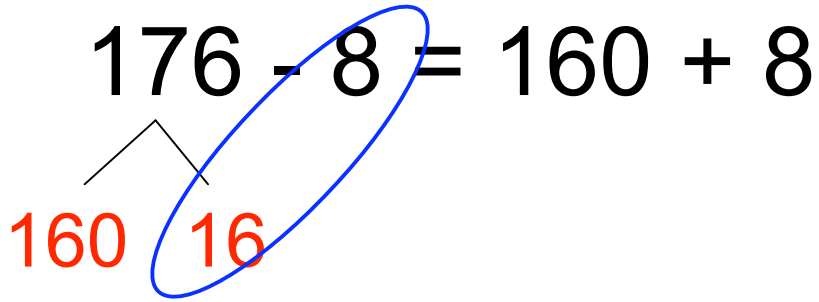
Methods for mental subtraction

- Subtract from a 10 (renaming)



Methods for mental subtraction

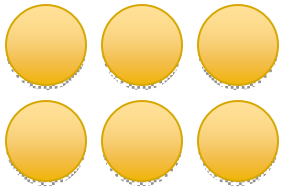
- Rename a 10 as ones and recall the fact (renaming).



Multiplication table of 3

3 X 1 = 3

Multiplication table of 3

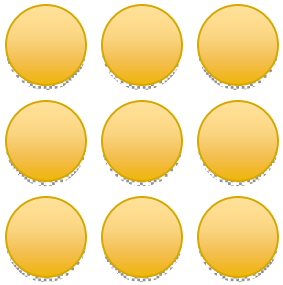


3 X 1 = 3

3 X 2 = 6

+ 3

Multiplication table of 3



3 X 1 = 3

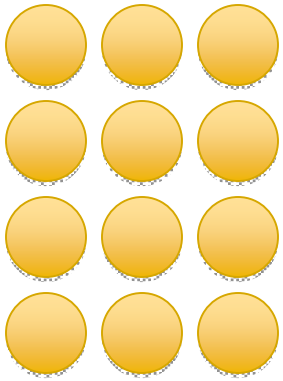
3 X 2 = 6

3 X 3 = 9

+ 3

+ 3

Multiplication table of 3



3 X 1 = 3

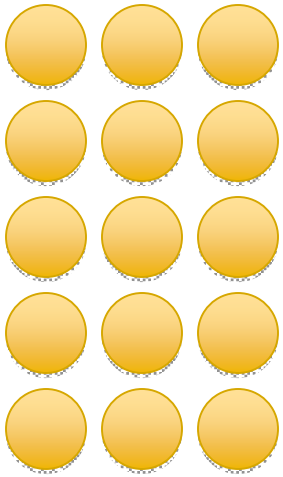
3 X 2 = 6

3 X 3 = 9

3 X 4 = 12

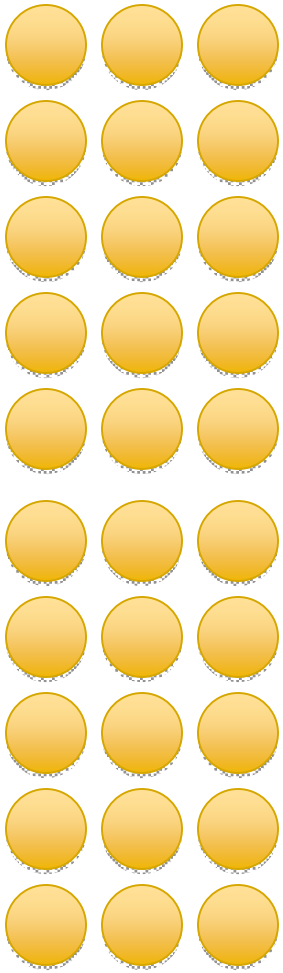
X 2

Multiplication table of 3



3 X 1 = 3
3 X 2 = 6
3 X 3 = 9
3 X 4 = 12
3 X 5 = 15

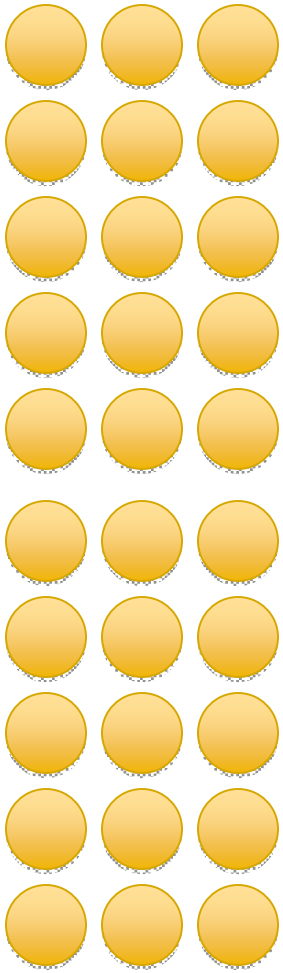
Multiplication table of 3



3 X 1 = 3
3 X 2 = 6
3 X 3 = 9
3 X 4 = 12
3 X 5 = 15
3 X 6 = 18
3 X 7 = ?
3 X 8 = ?
3 X 9 = ?
3 X 10 = ?

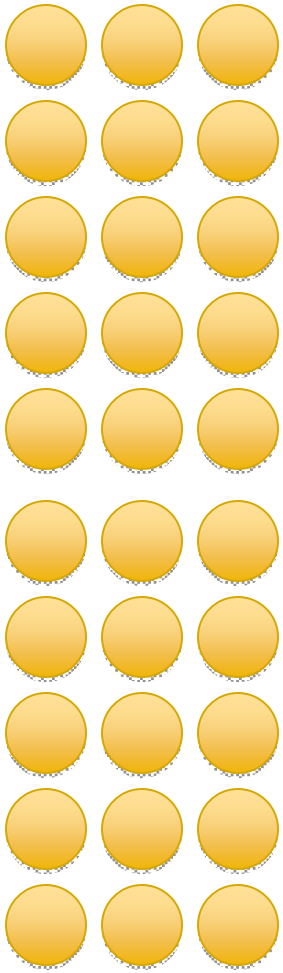
X 2

Multiplication table of 3



3 X 1 = 3
3 X 2 = 6
3 X 3 = 9
3 X 4 = 12
3 X 5 = 15
3 X 6 = ?
3 X 7 = ?
3 X 8 = ?
3 X 9 = ?
3 X 10 = ?

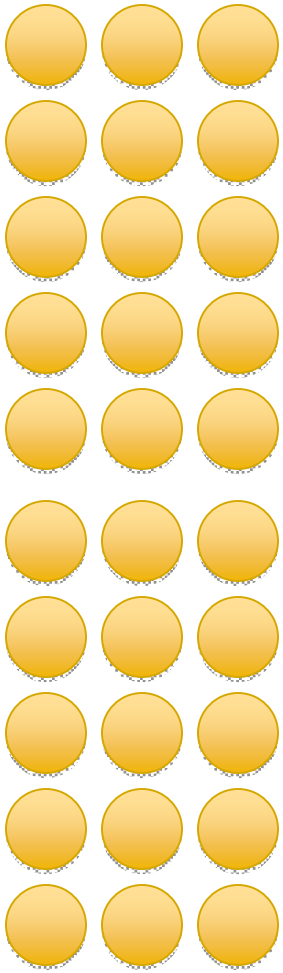
Multiplication table of 3 is easy!



3 X 1 = 3
3 X 2 = 6
3 X 3 = 9
3 X 4 = 12
3 X 5 = 15
3 X 6 = ?
3 X 7 = 21
3 X 8 = ?
3 X 9 = ?
3 X 10 = ?

3 X 2 + 3 X 5

Multiplication table of 6 is easy!



3 X 1 = 3

3 X 2 = 6

3 X 3 = 9

3 X 4 = 12 → 6 X 4 = 12 + 12

3 X 5 = 15

3 X 6 = 18

3 X 7 = 21 → 6 X 7 = 21+ 21

3 X 8 = 24 → 6 X 8 = 24+ 24

3 X 9 = 27

3 X 10 = 30