
Singapore Math

Developing conceptual understanding of mathematics

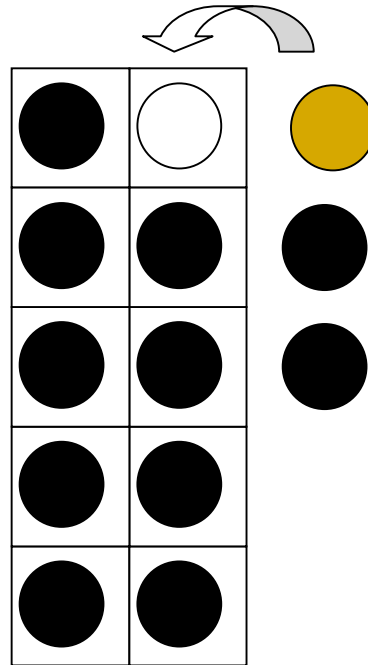
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Addition with regrouping (grade 1)

$$9 + 3 = 10 + 2$$

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.


$$9 + 4$$


$$1 \quad 3$$

$$9 + 1 = 10$$

$$10 + 3 = 13$$

$$7 + 8$$


$$5 \quad 2$$

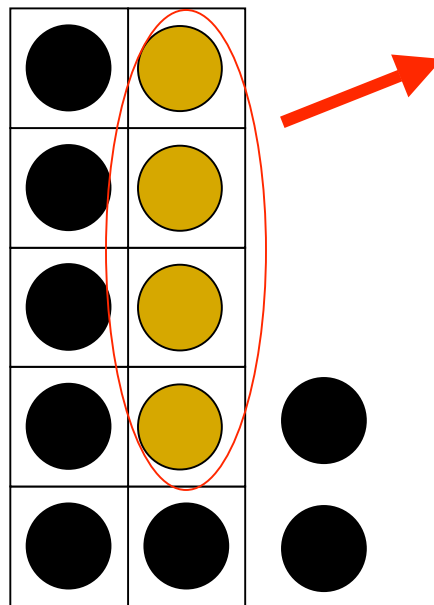
$$2 + 8 = 10$$

$$10 + 5 = 15$$

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.

$$\begin{array}{r} \text{minuend} \quad \quad \text{subtrahend} \\ 12 - 4 \\ \swarrow \searrow \\ 10 \quad 2 \end{array}$$

$$15 - 6 \quad 4 + 5 = 9$$

$$13 - 8 \quad 2 + 3 = 5$$

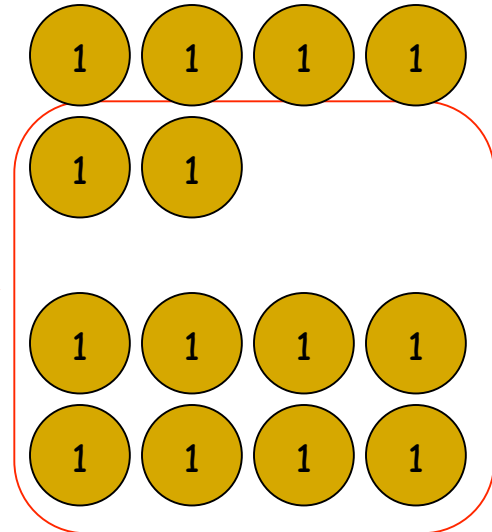
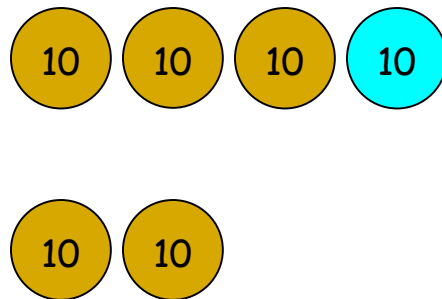
$$11 - 3 \quad 7 + 1 = 8$$

$$10 - 4 = 6$$

$$6 + 2 = 8$$

Addition with renaming

$$36 + 28$$



Add the tens.

1 tens + 3 tens + 2 tens =
6 tens

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

Add the ones.

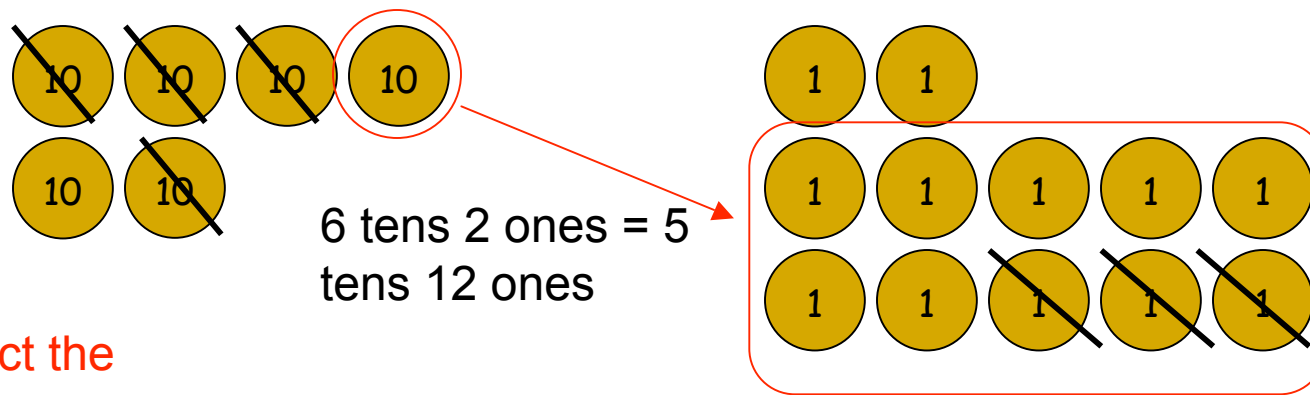
6 ones + 8 ones = 14
ones

14 ones = 1 ten and 4
ones

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

Subtraction with renaming

$$62 - 43$$



Subtract the
tens.

5 tens - 4 tens =
1 ten

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

Subtract the
ones.

12 ones - 3
ones = 9 ones

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

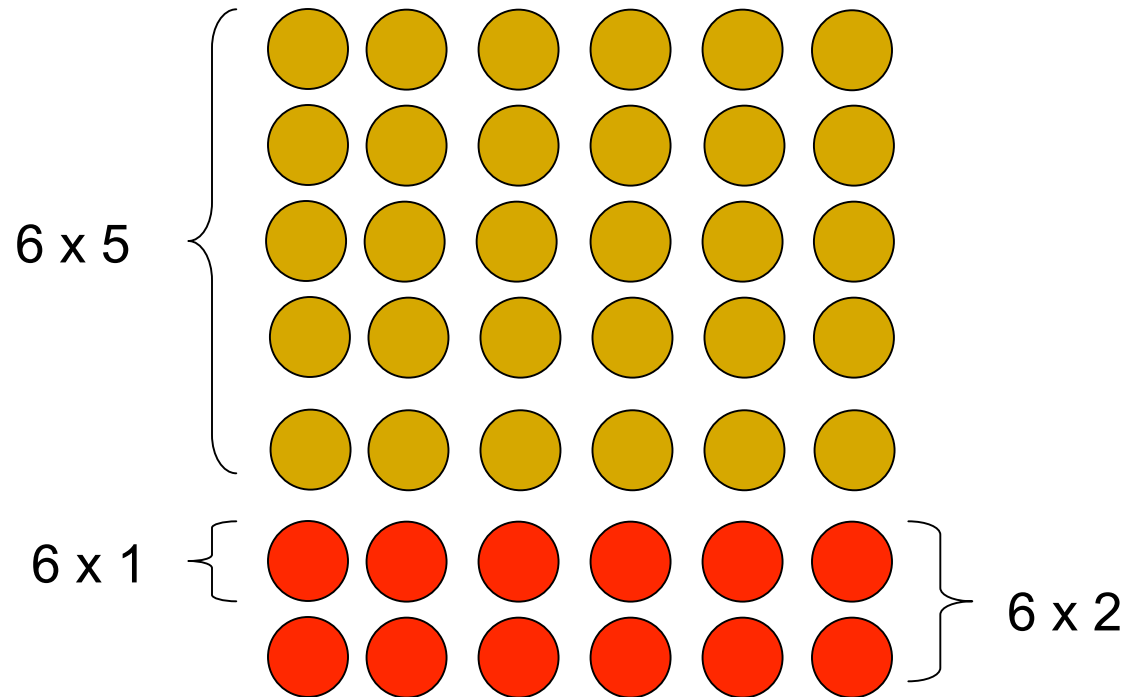
Multiplication facts

$$6 \times 6 = 30 + 6$$

5 1

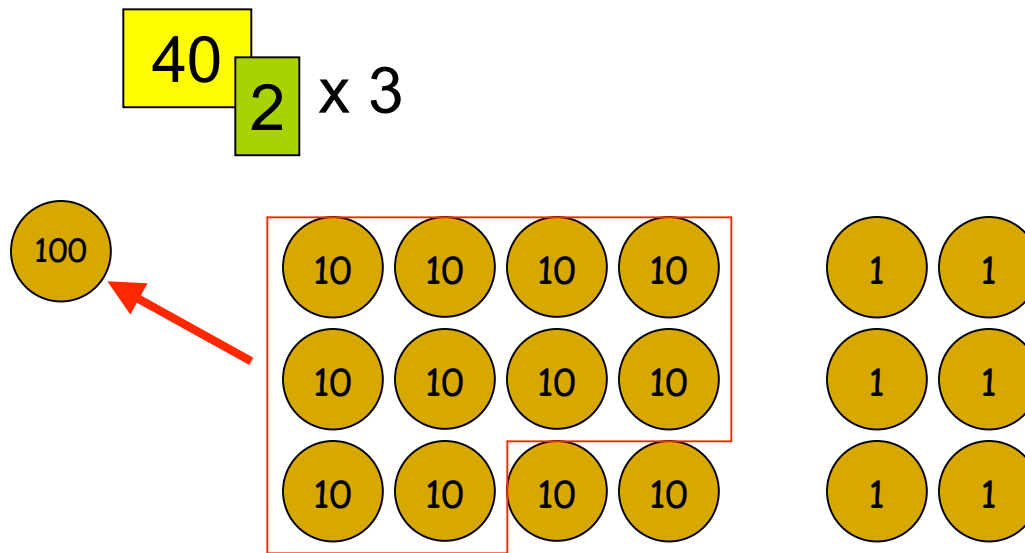
$$6 \times 7 = 30 + 12$$

5 2



Important mathematical properties and algebraic manipulation are taught informally.

Multiplication algorithm



$$42 \times 3$$

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

Multiply the ones by 3.

$$\begin{array}{r} 42 \\ \times 3 \\ \hline 6 \end{array}$$

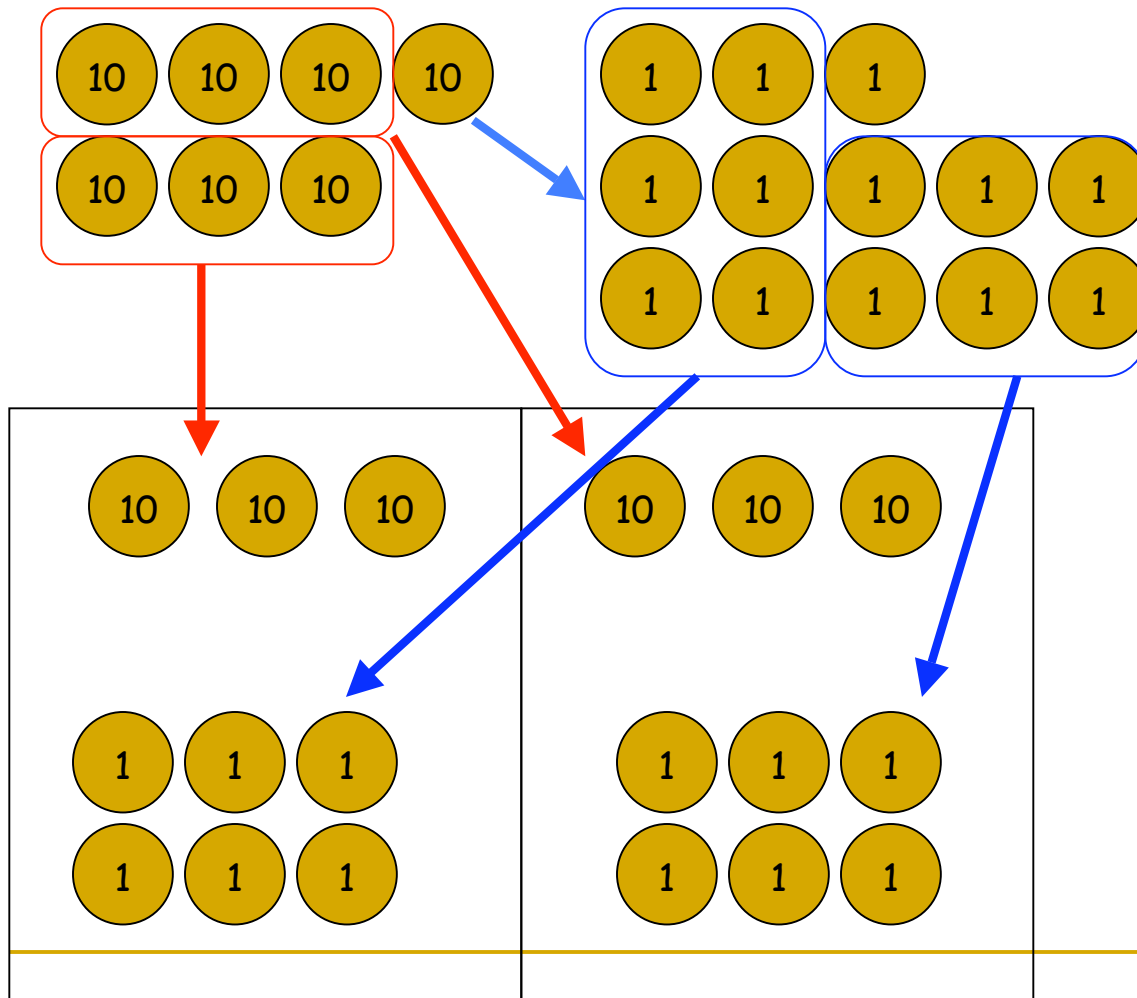
Multiply the tens by 3.

$$\begin{array}{r} 42 \\ \times 3 \\ \hline 126 \end{array}$$

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.

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

Methods for mental addition

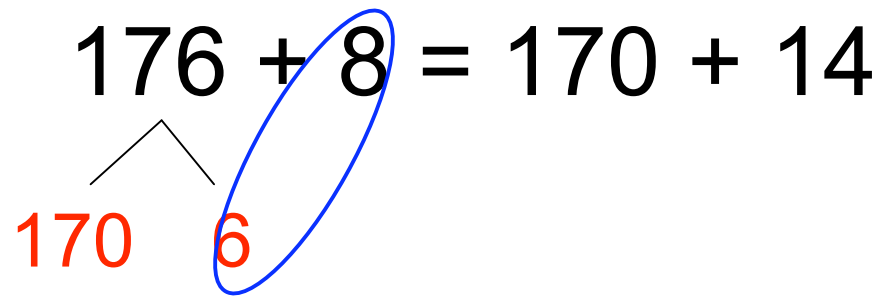
- Make a 10.

$$176 + 8 = 180 + 4$$

The diagram shows the number 176 with a blue oval around it. Below the 6 is a red 4. A bracket connects this red 4 to another red 4 located below the 8 in the expression 176 + 8 = 180 + 4. This illustrates the process of adding 4 to 176 to reach 180, and then adding the remaining 4 from the original 8.

Methods for mental addition

- Use addition facts and rename.

$$\begin{array}{c} 176 + 8 = 170 + 14 \\ \swarrow \searrow \\ 170 \quad 6 \end{array}$$


The diagram illustrates the process of renaming 176 to 170 and 6. A blue oval is drawn around the 6 in 176 and the 8 in 8, indicating that these two numbers are being combined to form 14. The 170 is shown in red, and the 6 is also in red, indicating they are the new components of the number 176.

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)


$$457 + 98 = 455 + 100$$

The diagram illustrates the mental addition strategy. It shows the equation $457 + 98 = 455 + 100$. A bracket under 457 points down to the red number 455. A blue oval encircles the 2 in 98 and the 2 in 455, indicating that 2 is subtracted from 457 and added to 98 to make the calculation easier.

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)

$$155 - 40 = 110 + 5$$

5 150

Methods for mental subtraction

- Subtract from a 10 (renaming)

$$176 - 8 = 162 + 6$$

The diagram shows the number 176 with a blue oval around the 7 and 6. A black line connects the 7 to a red 6 below it, and the 6 to a red 170 below it, illustrating the renaming process where 176 is treated as 170 + 6.

Methods for mental subtraction

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

$$\begin{array}{r} 176 - 8 = 160 + 8 \\ \swarrow \searrow \\ 160 \quad 16 \end{array}$$

Multiplication table of 3



$$3 \times 1 = 3$$

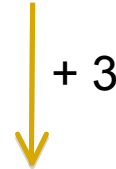
Multiplication table of 3



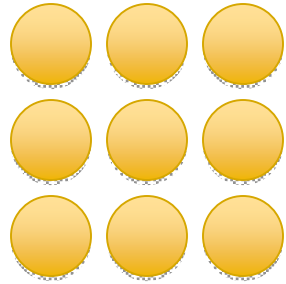
$$3 \times 1 = 3$$



$$3 \times 2 = 6$$



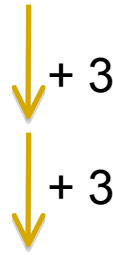
Multiplication table of 3



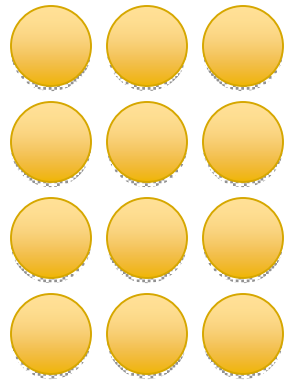
$$3 \times 1 = 3$$

$$3 \times 2 = 6$$

$$3 \times 3 = 9$$



Multiplication table of 3



$$3 \times 1 = 3$$

$$3 \times 2 = 6$$

$$3 \times 3 = 9$$

$$3 \times 4 = 12$$

x 2

Multiplication table of 3



$$3 \times 1 = 3$$



$$3 \times 2 = 6$$



$$3 \times 3 = 9$$

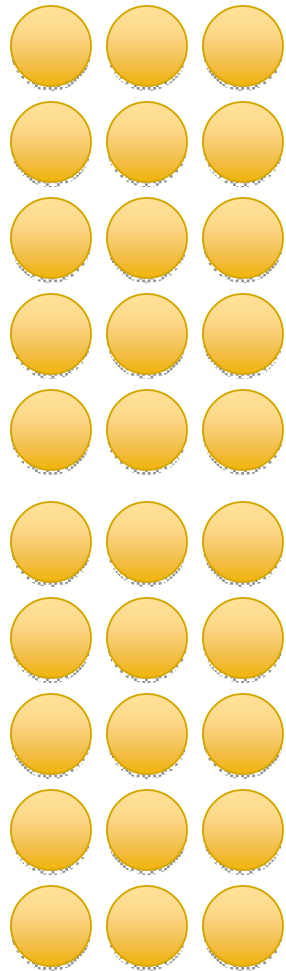


$$3 \times 4 = 12$$



$$3 \times 5 = 15$$

Multiplication table of 3



$$3 \times 1 = 3$$

$$3 \times 2 = 6$$

$$3 \times 3 = 9$$

$$3 \times 4 = 12$$

$$3 \times 5 = 15$$

$$3 \times 6 = 18$$

$$3 \times 7 = ?$$

$$3 \times 8 = ?$$

$$3 \times 9 = ?$$

$$3 \times 10 = ?$$

x 2

Multiplication table of 3



$$3 \times 1 = 3$$



$$3 \times 2 = 6$$



$$3 \times 3 = 9$$



$$3 \times 4 = 12$$



$$3 \times 5 = 15$$



$$3 \times 6 = ?$$



$$3 \times 7 = ?$$



$$3 \times 8 = ?$$

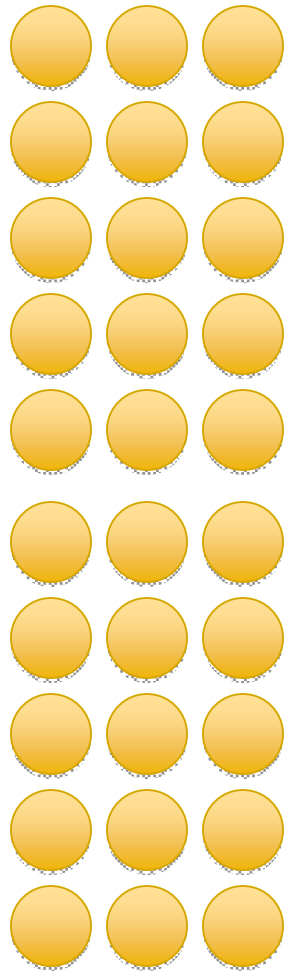


$$3 \times 9 = ?$$



$$3 \times 10 = ?$$

Multiplication table of 3 is easy!



$$3 \times 1 = 3$$

$$3 \times 2 = 6$$

$$3 \times 3 = 9$$

$$3 \times 4 = 12$$

$$3 \times 5 = 15$$

$$3 \times 6 = ?$$

$$3 \times 7 = 21$$

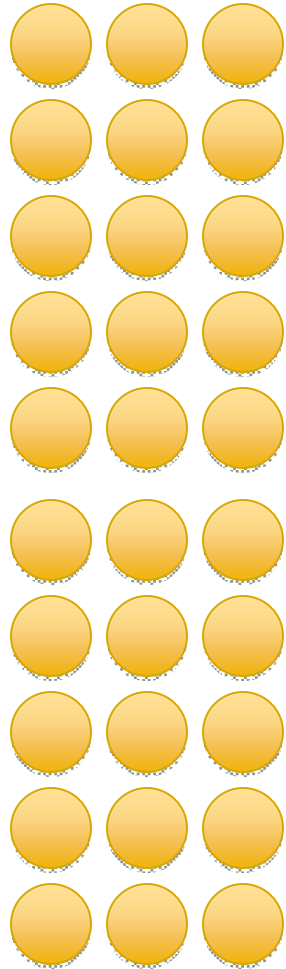
$$3 \times 8 = ?$$

$$3 \times 9 = ?$$

$$3 \times 10 = ?$$

$$3 \times 2 + 3 \times 5$$

Multiplication table of 6 is easy!



$$3 \times 1 = 3$$

$$3 \times 2 = 6$$

$$3 \times 3 = 9$$

$$3 \times 4 = 12 \longrightarrow 6 \times 4 = 12 + 12$$

$$3 \times 5 = 15$$

$$3 \times 6 = 18$$

$$3 \times 7 = 21 \longrightarrow 6 \times 7 = 21 + 21$$

$$3 \times 8 = 24 \longrightarrow 6 \times 8 = 24 + 24$$

$$3 \times 9 = 27$$

$$3 \times 10 = 30$$