

6 MULTIPLICATION

Tick (✓) the groups which have equal number of objects.

(A)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(B)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(C)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(D)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. Count in groups and find total.

(A)



Total number of blades in 3 fans = + + =

(B)



Total number of wheels in 4 bicycles = + + + =

(C)



Total number of legs of 5 goats = + + + + =

2. Write the sum of the following.

(A) $9 + 9 + 9 =$ (B) $7 + 7 + 7 + 7 + 7 =$

(C) $3 + 3 =$ (D) $5 + 5 + 5 + 5 =$

(E) $4 + 4 + 4 =$ (F) $6 + 6 =$

Sudhir's classroom

Look at the picture carefully.



Now answer the following questions-

How many groups of children are there?

How many children are there in each group?

Total number of children in the classroom is

$$\square + \square + \square + \square = \square$$

Here we are adding 4 groups of children and there are 3 students in each group. The total number students is 12.

We can also say "4 times 3 is 12". This is written as $4 \times 3 = 12$.

'x' is the symbol of multiplication

Now look at the picture again and fill the following blanks-

Books :

- (A) Number of groups = _____
- (B) Number of books in each group = _____
- (C) Total number of books are _____ times _____ = _____
or _____ x _____ = _____

Charts :

- (A) Number of groups = _____
- (B) Number of charts in each group = _____
- (C) Total number of charts are _____ times _____ = _____
or _____ x _____ = _____

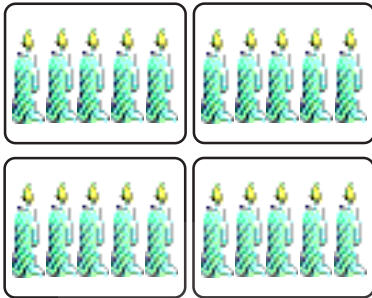
Kites :

- (A) Number of groups = _____
- (B) Number of kites in each group = _____
- (C) Total number of kites are _____ times _____ = _____
or _____ x _____ = _____

Repeated addition is called multiplication.

Do This

1. (A) How many candles are there?

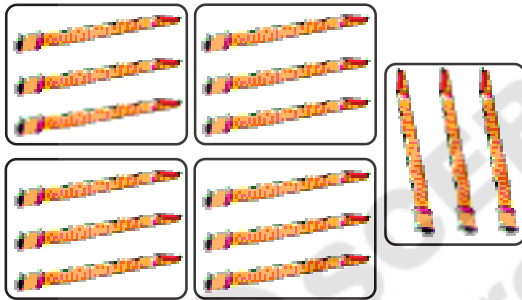


Number of groups =

Number of candles in each group =

Total candles = x =

(B) How many flutes are there?



Number of groups =

Number of flutes in each group =

Total flutes = x =

(C) How many apples are there?

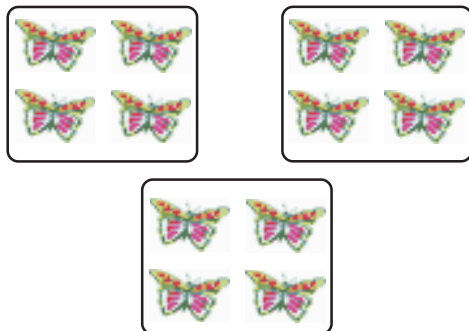


Number of groups =

Number of apples in each group =

Total apples = x =

(D) How many butterflies are there?



Number of groups =

Number of butterflies in each group =

Total butterflies = x =

2. Express in the form of multiplication.

(A) $5 + 5 + 5$ = x =

(B) $6 + 6 + 6 + 6$ = x =

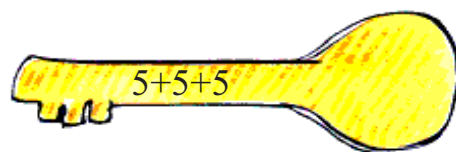
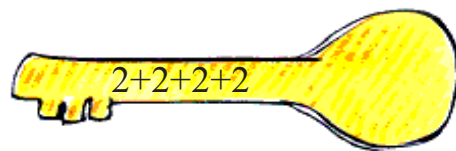
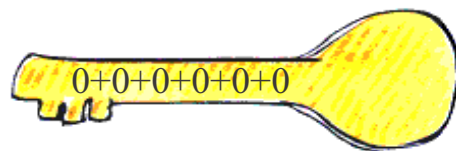
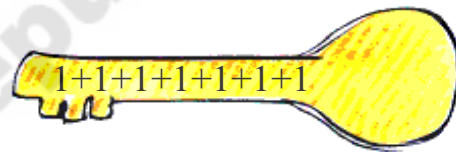
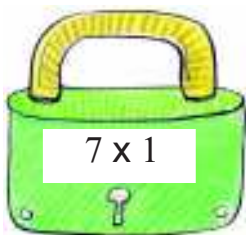
(C) $7 + 7$ = x =

(D) $2 + 2 + 2 + 2$ = _____

(E) $3 + 3 + 3 + 3 + 3$ = _____

(F) $1 + 1 + 1 + 1 + 1 + 1$ = _____

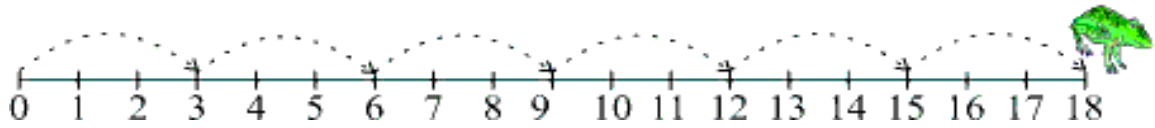
3. Match the locks to their keys.



Frogie Jumps

Multiplication can also be seen in step counting.

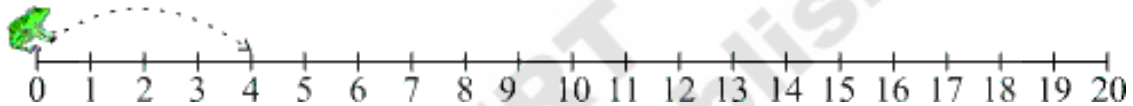
A frog jumped 3 steps in a single jump. It jumped 6 times.



This can be written as 6 times 3 or $6 \times 3 = 18$

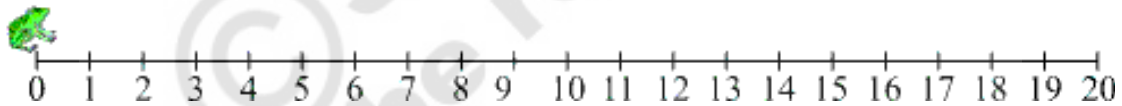
Express the following using multiplication-

(A) Frogie Jump = 4 steps; 5 jumps

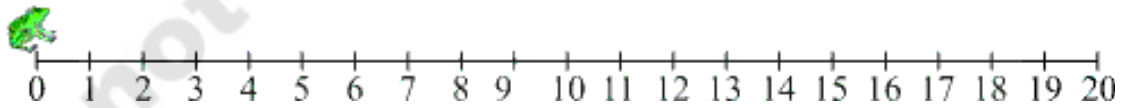


5 times 4 or $5 \times 4 = 20$

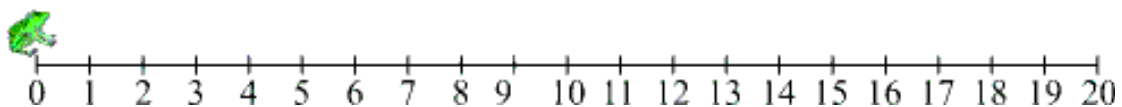
(B) Frogie Jump = 2 steps; 6 jumps



(C) Frogie Jump = 3 steps; 4 jumps



(D) Frogie Jump = 5 steps; 2 jumps



Raju goes to the vegetable market

Raju went to a vegetable market. His mother told him to buy 3 kgs of tomatoes. He calculated the money he had to pay for the tomatoes in the following way-



Rate Chart

1 kg tomatoes = ₹ 5

1 kg onions = ₹ 10

1 kg potatoes = ₹ 4

1 pack of spinach = ₹ 6

Cost of 1 kg tomatoes = ₹ 5

Cost of 2 kg tomatoes = ₹ 5 + ₹ 5 = ₹ 10

Cost of 3 kg tomatoes = ₹ 5 + ₹ 5 + ₹ 5 = ₹ 15

Is there any other way to find the cost?

Can he multiply- $3 \times 5 = 15$?

Read the rate chart in above example and answer the following questions-

- (A) If you want to buy 5 kgs of onions, how much will they cost?

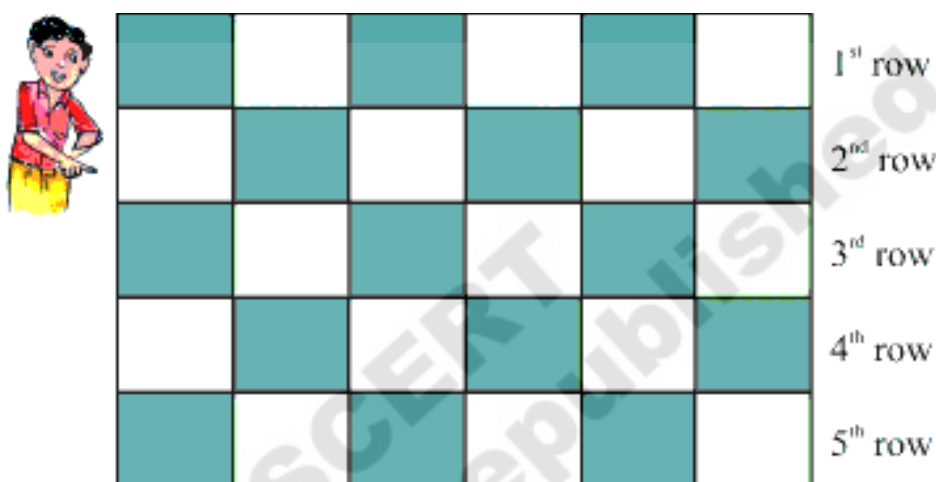
- (B) How much will 4 kgs of potatoes cost?

- (C) How much will 4 packs of spinach cost?

Tanisha counts the tiles in his classroom

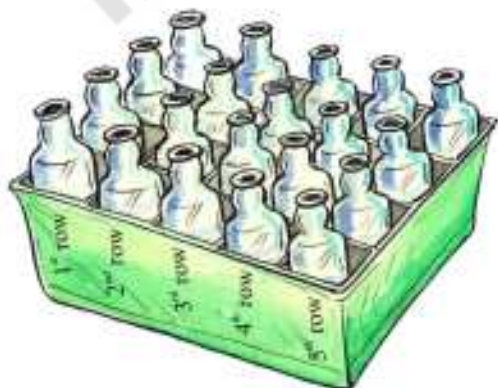
Tanisha started counting the tiles on her classroom floor, one by one. Her elder brother saw her doing so. He asked her, "Are the tiles in each row equal?" Tanisha answered, "Yes, there are 6 tiles in each row."

Her brother again asked her, "How many such rows are there?" Tanisha answered "There are 5 such rows."



Tanisha looked at the floor again and immediately said, "I do not need to count each tile. I can simply multiply, $5 \times 6 = 30$ tiles."

How many bottles are there?



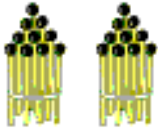
$$\square + \square + \square + \square + \square = \square$$

$$\square \times \square = \square$$

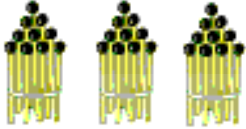
Let us construct the table of 10.



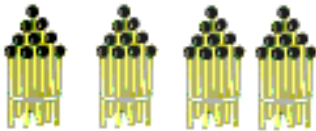
$$1 \times 10 = 10$$



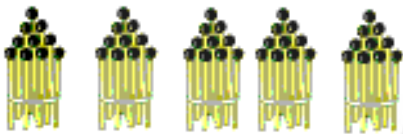
$$2 \times 10 = 20$$



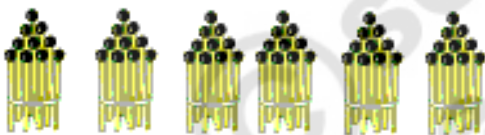
$$3 \times 10 = 30$$



$$4 \times 10 = 40$$



$$5 \times 10 = 50$$



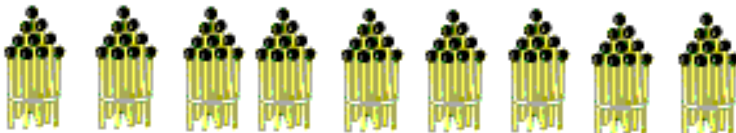
$$6 \times 10 = 60$$



$$7 \times 10 = 70$$



$$8 \times 10 = 80$$



$$9 \times 10 = 90$$



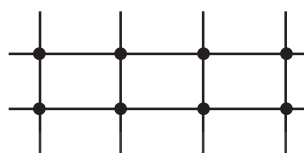
$$10 \times 10 = 100$$

Let us construct the table of 4.

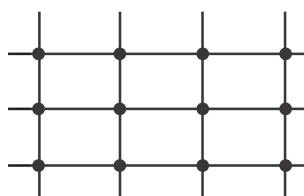
These are broom sticks arranged in the following way-



Number of joints $1 + 1 + 1 + 1 = 4 \times 1 = 4$



Number of joints $2 + 2 + 2 + 2 = 4 \times 2 = 8$



Number of joints $3 + 3 + 3 + 3 = 4 \times 3 = 12$

Continue to add more broom-sticks and construct the table of 4.

Try This

Construct tables of 2, 3, 5, 6, 7, 8, 9 using match-sticks or broom-sticks.

Buzz

Let children stand or sit in a circle. Ask children to speak aloud numbers, in a sequence. If you are playing with the table of 4 then every 4th, 8th, 12th, 16th child should say Buzz instead of a number. If he fails to say so, he will be out of the game. Continue to play this game till one child is left.



Multiplication with zero.

$$\begin{aligned}\text{One zero} &= 0 &= 1 \times 0 = 0 \\ \text{Sum of 2 zeroes} &= 0 + 0 &= 2 \times 0 = 0 \\ \text{Sum of 3 zeroes} &= 0 + 0 + 0 &= 3 \times 0 = 0 \\ \text{Sum of 4 zeroes} &= 0 + 0 + 0 + 0 &= 4 \times 0 = 0 \\ \text{Sum of 5 zeroes} &= \underline{\hspace{2cm}} = \underline{\hspace{2cm}}\end{aligned}$$

On multiplying any number with zero, we get _____.

Multiplication with one.

$$\begin{aligned}\text{One} &= 1 &= 1 \\ \text{Sum of 2 ones} &= 1 + 1 &= 2 \times 1 = 2 \\ \text{Sum of 3 ones} &= 1 + 1 + 1 &= 3 \times 1 = 3 \\ \text{Sum of 4 ones} &= 1 + 1 + 1 + 1 &= 4 \times 1 = 4 \\ \text{Sum of 5 ones} &= \underline{\hspace{2cm}} = \underline{\hspace{2cm}}\end{aligned}$$

On multiplying any number with one, we get _____.

Are the answers same in each case?

$$\begin{aligned}3 \times 2 &= 6 \\ 2 \times 3 &= 6\end{aligned}$$

$$\begin{aligned}4 \times 5 &= 20 \\ 5 \times 4 &= 20\end{aligned}$$

$$\begin{aligned}3 \times 4 &= \underline{\hspace{2cm}} \\ 4 \times 3 &= \underline{\hspace{2cm}}\end{aligned}$$

$$\begin{aligned}5 \times 6 &= \underline{\hspace{2cm}} \\ 6 \times 5 &= \underline{\hspace{2cm}}\end{aligned}$$

$$\begin{aligned}1 \times 7 &= \underline{\hspace{2cm}} \\ 7 \times 1 &= \underline{\hspace{2cm}}\end{aligned}$$

$$\begin{aligned}8 \times 9 &= \underline{\hspace{2cm}} \\ 9 \times 8 &= \underline{\hspace{2cm}}\end{aligned}$$

Try the above with any two numbers of your choice.

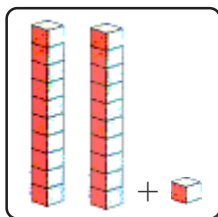
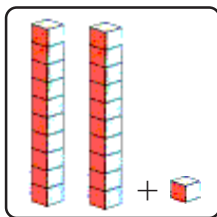
Multiplying bigger numbers

Let us multiply 3×21 .

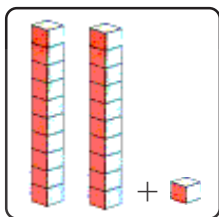
21 means = $20 + 1$

There are 2 tens and one 1

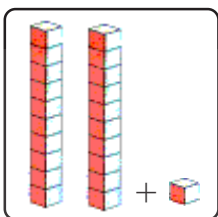
$3 \times 21 = 21 + 21 + 21$



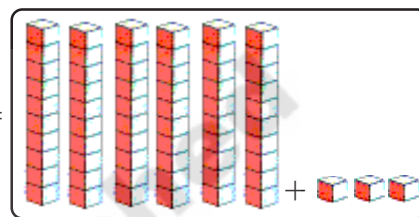
$20 + 1$



$20 + 1$



$20 + 1$



$60 + 3$

You can also multiply like this:

$$\begin{array}{r}
 20 + 1 \\
 \boxed{60} \quad \boxed{3} \quad \times 3 \\
 \hline
 60 + 3 = 63
 \end{array}$$

First multiply 3 with 1.

Then multiply 3 with 2.

3×1 ones = 3 ones = 3.

3×2 tens = 6 tens = 60.

This can also be done like this:

$$\begin{array}{r}
 21 \\
 \times 3 \\
 \hline
 \boxed{6} \quad \boxed{3}
 \end{array}$$

Mona multiplied like this:

$$\begin{array}{r} 23 \\ \times 4 \\ \hline 812 \end{array}$$

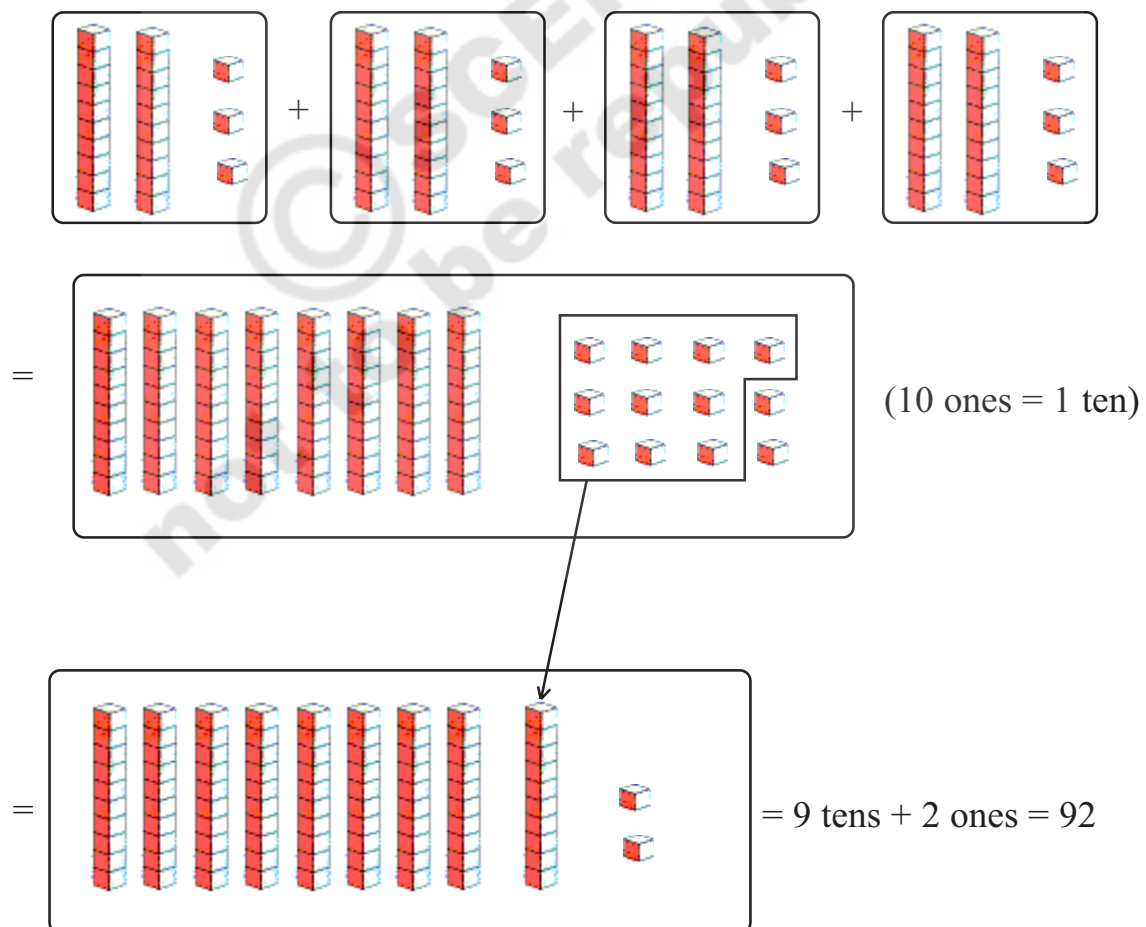
Here she has multiplied- $4 \times 3 = 12$ and $4 \times 2 = 8$

But this is not right. Let us check.

$$23 \times 4 = 23 + 23 + 23 + 23$$

$$23 = 20 + 3$$

Thus, $20 + 3$ is added 4 times



We can also multiply like this-

$$\begin{array}{r} 20 + 3 \\ \boxed{80} \mid \boxed{12} \times 4 \end{array}$$

$$80 + 12 = 92$$

or take this-

$$\begin{array}{r} \textcircled{1} \\ 2 \quad 3 \\ \times \quad 4 \\ \hline 9 \quad 2 \\ \hline \end{array}$$

First $4 \times 3 = 12$. 12 means 1 ten + 2 ones. Take 2 in ones place and carry 1 in tens place.

Then $4 \times 2 = 8$. 8 tens. Add 8 tens to the 1 ten which has been carried over. 8 tens + 1 tens = 9 tens or 90.

Do These

1. Multiply orally.

- | | | | |
|-----------------------|----------------------|----------------------|----------------------|
| (A) $30 \times 2 =$ | <input type="text"/> | (B) $20 \times 4 =$ | <input type="text"/> |
| (C) $60 \times 3 =$ | <input type="text"/> | (D) $195 \times 0 =$ | <input type="text"/> |
| (E) $2105 \times 0 =$ | <input type="text"/> | (F) $10 \times 5 =$ | <input type="text"/> |
| (G) $625 \times 1 =$ | <input type="text"/> | (H) $819 \times 1 =$ | <input type="text"/> |
| (I) $216 \times 1 =$ | <input type="text"/> | (J) $103 \times 4 =$ | <input type="text"/> |

2. Multiply as shown in the example given below.

Example :

$$\begin{array}{r} 43 \times 2 \\ 40 + 3 \\ \boxed{80} \mid \boxed{6} \times 2 \\ 80 + 6 = 86 \end{array}$$

(A) 32×3

$$\begin{array}{r} 30 + 2 \\ \boxed{} \mid \boxed{} \times 3 \\ + = \end{array}$$

(B) 34×5

$$\begin{array}{|c|c|} \hline 30 & +4 \\ \hline \square & \square \\ \hline \end{array} \times 5$$

___ + ___ = ___

(C) 25×4

$$\begin{array}{|c|c|} \hline 20 & +5 \\ \hline \square & \square \\ \hline \end{array} \times 4$$

___ + ___ = ___

(D) 48×6

$$\begin{array}{|c|c|} \hline 40 & +8 \\ \hline \square & \square \\ \hline \end{array} \times 6$$

___ + ___ = ___

(E) 52×4

$$\begin{array}{|c|c|} \hline \square & \square \\ \hline \end{array}$$

___ + ___ = ___

3. Multiply as shown in the example given below.

Example :

$$\begin{array}{|c|c|} \hline \text{10} & \text{1} \\ \hline 2 & 3 \\ \hline \times & 3 \\ \hline \hline 6 & 9 \\ \hline \end{array}$$

(A) $\begin{array}{|c|c|} \hline \text{10} & \text{1} \\ \hline 4 & 3 \\ \hline \times & 3 \\ \hline \hline \end{array}$

(B) $\begin{array}{|c|c|} \hline \text{10} & \text{1} \\ \hline 3 & 1 \\ \hline \times & 5 \\ \hline \hline \end{array}$

(C) $\begin{array}{|c|c|} \hline \text{10} & \text{1} \\ \hline 9 & 3 \\ \hline \times & 2 \\ \hline \hline \end{array}$

(D) $\begin{array}{|c|c|} \hline \text{10} & \text{1} \\ \hline 3 & 6 \\ \hline \times & 7 \\ \hline \hline \end{array}$

(E) $\begin{array}{|c|c|} \hline \text{10} & \text{1} \\ \hline 4 & 7 \\ \hline \times & 9 \\ \hline \hline \end{array}$

(F) $\begin{array}{|c|c|} \hline \text{10} & \text{1} \\ \hline 7 & 0 \\ \hline \times & 4 \\ \hline \hline \end{array}$

(G) $\begin{array}{|c|c|} \hline \text{10} & \text{1} \\ \hline 2 & 5 \\ \hline \times & 4 \\ \hline \hline \end{array}$

See this...

(A) $\begin{array}{|c|c|} \hline \text{10} & \text{1} \\ \hline 3 & 7 \\ \hline \times & 3 \\ \hline \hline \end{array}$

(B) $\begin{array}{|c|c|} \hline \text{10} & \text{1} \\ \hline 3 & 7 \\ \hline \times & 6 \\ \hline \hline \end{array}$

(C) $\begin{array}{|c|c|} \hline \text{10} & \text{1} \\ \hline 3 & 7 \\ \hline \times & 9 \\ \hline \hline \end{array}$

Multiplication in daily life

1. There are 5 autos. In each auto there are 4 people. How many people are there in the 5 autos?

Ans. This means : 4 people + 4 people + 4 people + 4 people + 4 people.

$$\text{or } 5 \times 4 = 20$$

There are 20 people in 5 autos.

2. 7 cotton seeds are planted in each row. There are 8 such rows in the field. How many total seeds are planted in the field?

Ans. Each row contains 7 seeds

$$\text{Number of rows} = 8$$

$$\text{Total number of seeds} = 8 \times 7 = 56$$

A total of 56 seeds are planted.

3. Roja spends ₹ 5 each day. How much money does she spend in a week?

Ans. Roja spends each day = ₹ 5

$$\text{Days in a week} = 7$$

$$\text{Money spent in a week } 7 \times 5 = 35$$

Roja spends ₹ 35 in a week.

The word 'twice' means 2 times. Twice of 5 means 2×5

The word 'thrice' means 3 times. Thrice of 5 means 3×5

4. Surya's age is twice that of Ramya.

Ramya is 9 years. What is Surya's age?

Ans. Ramya's age = 9 years

Surya's age = Twice Ramya's age

= 2 x Ramya's age

= 2 x 9

= 18

Surya's age is 18 years

Try These

1. There are 65 mangoes in a box. How many mangoes did 8 such boxes have?
2. The bus fare from Nalgonda to Vijayawada is ₹ 93 for one person. How much money is needed for 5 persons to travel?
3. Ravi has ₹ 20. Madhu has 3 times Ravi's money. How much money does Madhu have?
4. Suresh can read 12 pages of a book each day. He read for 4 days. How many pages did he read in 4 days?
5. 9 children are standing in each row and there are 7 such rows. In all how many children are standing in the 7 rows?
6. A frog jumps 8 steps in each jump. It jumped 9 times in the same way. How many steps did the frog cover?