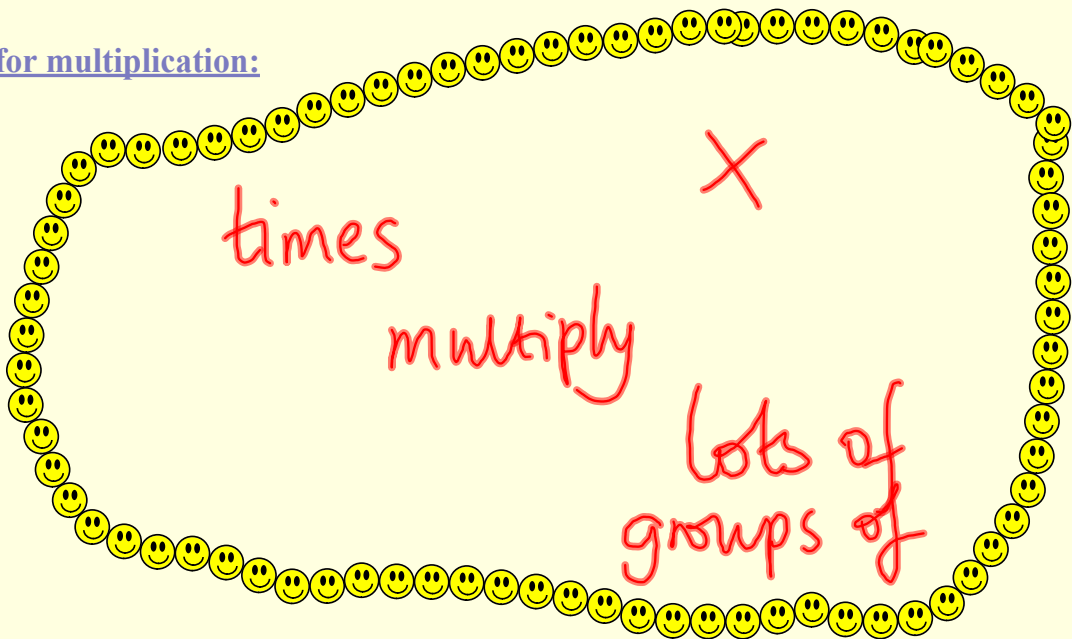


## Long Multiplication

Words for multiplication:



**Find the product of 4 and 5**

**Find the answer to 8 times 3.**

**What is 9 lots of 4?**

Multiplying two digit numbers by a single digit.

$$\begin{array}{r} 23 \times 5 = 115 \\ \times \begin{array}{|l} 20 \\ 3 \end{array} \\ \hline 5 \begin{array}{|l} 100 \\ + 15 \end{array} = 115 \end{array}$$

$$\begin{array}{r} 48 \times 3 = 144 \\ \times \begin{array}{|l} 40 \\ 8 \end{array} \\ \hline 3 \begin{array}{|l} 120 \\ + 24 \end{array} = 144 \end{array}$$

1.  $45 \times 4 = 180$
2.  $56 \times 3 = 168$
3.  $12 \times 9 = 108$
4.  $98 \times 3 = 294$
5.  $72 \times 5 = 360$

Multiplying three digit numbers by a single digit.

$$123 \times 5 = 615$$

$$\begin{array}{r|l} \times & 100 \quad 20 \quad 3 \\ 5 & 500 + 100 + 15 = 615 \end{array}$$

$$248 \times 3$$

$$\begin{array}{r|l} & 200 \quad 40 \quad 8 \\ 3 & 600 \quad 120 \quad 24 \end{array}$$

$$\begin{array}{r} 600 \\ 120 \\ 24 \\ \hline \underline{\underline{944}} \end{array}$$

1.  $415 \times 4 = 1660$  ✓  
 $\begin{array}{r} 830 \\ \hline 1660 \end{array}$   $1600 + 40 + 20$
2.  $562 \times 3 = 1686$
3.  $172 \times 9 = 1548$
4.  $398 \times 3 = 1194$
5.  $725 \times 5 = 3625$

Multiplying two digit numbers by a two digit number.

$$13 \times 51 = 663$$

$$\begin{array}{r} 10 \quad 3 \\ 50 \quad 500 \quad 150 \\ 1 \quad 10 \quad 3 \\ \hline 510 + 153 \\ 153 \\ \hline 663 \end{array}$$

$$48 \times 23$$

$$\begin{array}{r} 40 \quad 8 \\ 20 \quad 800 \quad 160 \\ 3 \quad 120 \quad 24 \\ \hline 920 + 184 \\ 184 \\ \hline 1104 \end{array}$$

1.  $45 \times 14 = 630$

2.  $56 \times 23 = 1288$

3.  $12 \times 94 = 1128$

4.  $98 \times 83 = 8134$

5.  $72 \times 52 = 3744$

Multiplying two digit numbers by a three digit number.

$$\begin{array}{r}
 137 \times 51 \\
 \times \quad 50 \quad 1 \\
 \hline
 100 \quad 5000 \quad 100 \\
 30 \quad 1500 \quad 30 \\
 7 \quad 350 \quad 7 \\
 \hline
 6850 \quad 137 \\
 \hline
 6987
 \end{array}$$

$$\begin{array}{r}
 148 \times 23 \\
 \times \quad 20 \quad 3 \\
 \hline
 100 \quad 2000 \quad 300 \\
 40 \quad 800 \quad 120 \\
 8 \quad 160 \quad 24 \\
 \hline
 2960 \quad 444 \\
 \hline
 3404
 \end{array}$$

1.  $245 \times 14 = 3430$

2.  $516 \times 23 = 11868$

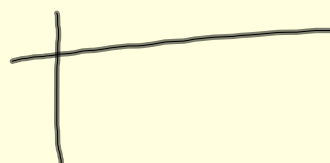
3.  $127 \times 94 = 11938$

4.  $398 \times 83 = 33034$

5.  $729 \times 52 = 37908$

$$\begin{array}{r}
 516 \times 23 \\
 \times \quad 20 \quad 3 \\
 \hline
 10000 \quad 200 \quad 120 \\
 1500 \quad 30 \quad 18 \\
 \hline
 11500 \quad 230 \quad 138 \\
 \hline
 11868
 \end{array}$$

$398 \times 83$



Using decimals in long multiplication

$$2.3 \times 4.5 = 10.35$$

$$23 \times 45 = 1035$$

×	20	3	
40	800	120	1030
5	100	15	
	900	+ 135	= 1035

$$4.2 \times 3.2 = 13.44$$

40	2		
30	1200	60	42 × 32 = 1344
2	80	4	
	1280	64	
	64		
	1344		

$$2.34 \times 7.1$$

$$234 \times 71 = 16614$$

70	1	
200	14000	200
30	2100	30
4	280	4
	16380	234
	234	
	16614	

1.  $2.5 \times 3.6 = 9.0$

2.  $9.2 \times 341 = 31.372$

3.  $5.82 \times 7$

### Problems Using Multiplication

- 1. 56 students each eat 9 sweets. How many do they eat altogether?**
- 2. 32 students buy a pencil each. They cost 25p. How much do they spend altogether?**
- 3. A girl eats 8 biscuits. Eat biscuits has 124 calories. How many calories has she eaten?**
- 4. A car uses 42 litres of petrol. If each litre costs 96p how much does it cost altogether?**