

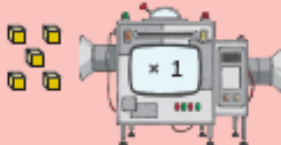


Key Vocabulary
multiply
groups of
regrouped
commutativity
lots of
times
divide
share
remainder
factor
multiple
product
integer


### Multiplication and Division Facts

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

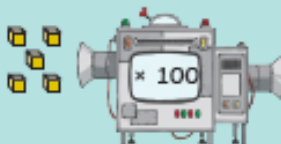
### Use Place Value to Multiply and Divide Mentally



$5 \times 1 = 5$   
 $5 \div 1 = 5$




$5 \times 10 = 50$   
 $50 \div 10 = 5$




$5 \times 100 = 500$   
 $500 \div 100 = 5$


### Factor pairs and Commutativity



The factors of 20 are 1, 2, 4, 5, 10 and 20.  
 The factor pairs are:

1 and 20	2 and 10	4 and 5
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$5 \times 4 = 20$   


$4 \times 5 = 20$   


### Multiply Using Formal Written Methods

	Th	H	T	O			
		5	4	3			
x				4			
			1	2	(4 x 3)		
		1	6	0	(4 x 40)		
	2	0	0	0	(4 x 500)		
	2	1	7	2			

	Th	H	T	O
		5	4	3
x				4
				4
	2	1	7	2
	1	1		

Remember to move any regrouped numbers into the next column. After the next multiplication, add the regrouped number to the answer.



Mental Calculations for Solving Problems		Integer Scaling Problems	
$(2 \times 3) \times 4 = 24$ 	$(2 \times 4) \times 3 = 24$ 	<b>10 pencils</b> 	$10 \times 4 = 40$ pencils 
$(3 \times 4) \times 2 = 24$ 		<b>75g</b> 	$75g \times 2 = 150g$ 

**Short Division with Exact Answers**

<p>There are 69 tennis balls packed in tubes of 3.</p> <p>There are 23 tubes altogether.</p>	$69 \div 3 = 23$	$\begin{array}{r} 23 \\ 3 \overline{) 69} \end{array}$	
69			
23	23	23	

What does commutativity mean? What addition and multiplication facts are commutative?  
 How could you solve  $27 \times 5$  mentally - what strategy could you use?