

# Mathematics Student Workbook

Book 8

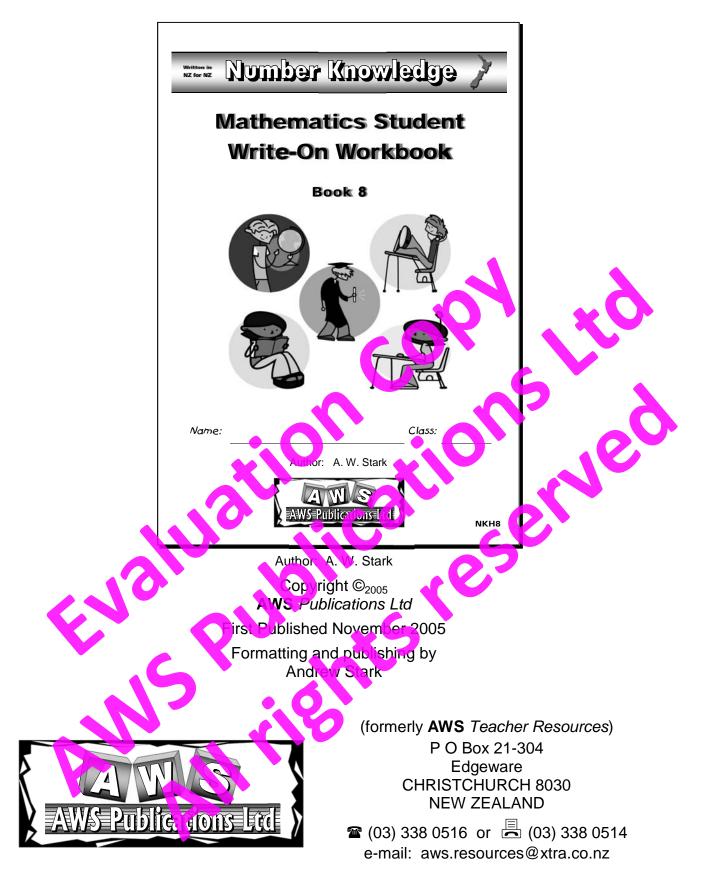


Name:

Class:

Author: A. W. Stark





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## Note from the author:



About this resource ...

## Number Knowledge Student Workbook - Book 8 (Code: NKH8)

is one of a series of 8 resources written to support the **NUMERACY PROJECT** currently being implemented within many New Zealand schools. Within each resource in this series, the **NUMBER KNOWLEDGE FACTS** are systematically and methodically introduced, providing students with the 'building blocks' required to progress through the various **NUMBER STRATEGY STAGES**.

These resources have been compiled using the **Achievement Objectives** from the appropriate **NUMBER** and **ALGEBRA STRANDS** as stated in the document ....

# Mathematics in the New Zealard Curriculum

and information from the various resources of the ...

# Numeracy Professional Development Project

... involving the Strategy Stages as listed below.

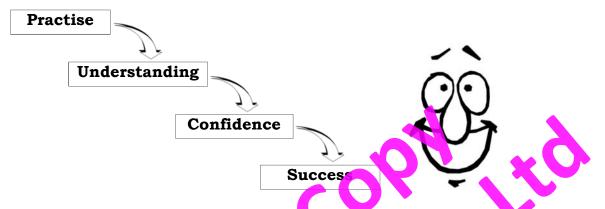
Completion Record Table - Write in the date when each sheet has been completed.

Sheet	Date	Sheet	Date	Sheet	Date	Sheet	Date
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2	0	12	.0	22	·6,	32	
3		3	<b>.</b>	23		33	
4		14		24		34	
5	S	15	(10	25		35	
6		10		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

## Note to Students:

I am sure you would love not to have to do homework. However, we will only get better at many things we do or learn, if we practise. I am sure you have heard the old saying 'practice makes perfect'.

In class you are shown and taught lots of new ideas. The reason for doing your homework is to practise what you have been taught in class. If you can do it on your own at home, or maybe with a little help from someone at home, then it shows you have remembered what you were shown in class.



No-one can make you learn. Your teachers, parents / caregivers and friends can help, but at the end of the day it's up to you. You do not have to always get it right, as long as you have tried to do the very best you can. Remember to ask for help if you do not understand or if you are not sure of what you have to do.

This resource has been written to help make doing your homework easier for both you and your teacher.

Good luck.

## Note to Parents / Caregivers:

You may not have found mathematics easy when you were at school nor do you have to be good at it. All you have to do is encourage your son / doughtor to do the very best he / she can. We cannot ask more from our children, than they are able to give. Try to be realistic with your own expectations of how well you think they should be doing at school.

To help your son / daughter, here are some ideas ..

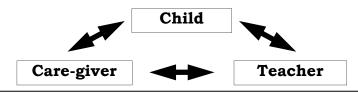
Provide a place where they can work quietly without too many distractions. Background music is okay, but television is too distracting because of the pictures.

- Provide them with the equipment they need
- Help them work out when is the best time to do their homework, encouraging them to establish routines. Remember they do need some time off to enjoy themselves, so do not expect them to work ait the time.
  - Give them plenty of encouragement and praise. Look at their work and sign each page when completed.

Our children need our support and encouragement if they are to do well. If your son / daughter is having a lot of trouble understanding the work, it may be a good idea to contact their teacher to talk about the best way you can help.

Good luck.

## Successful learning requires teamwork.



# How to use this resource - Book 8

The purpose of this resource is for students to either develop or revise the numeracy facts learnt in previous years and utilize these facts quickly and accurately to solve a range of problems.

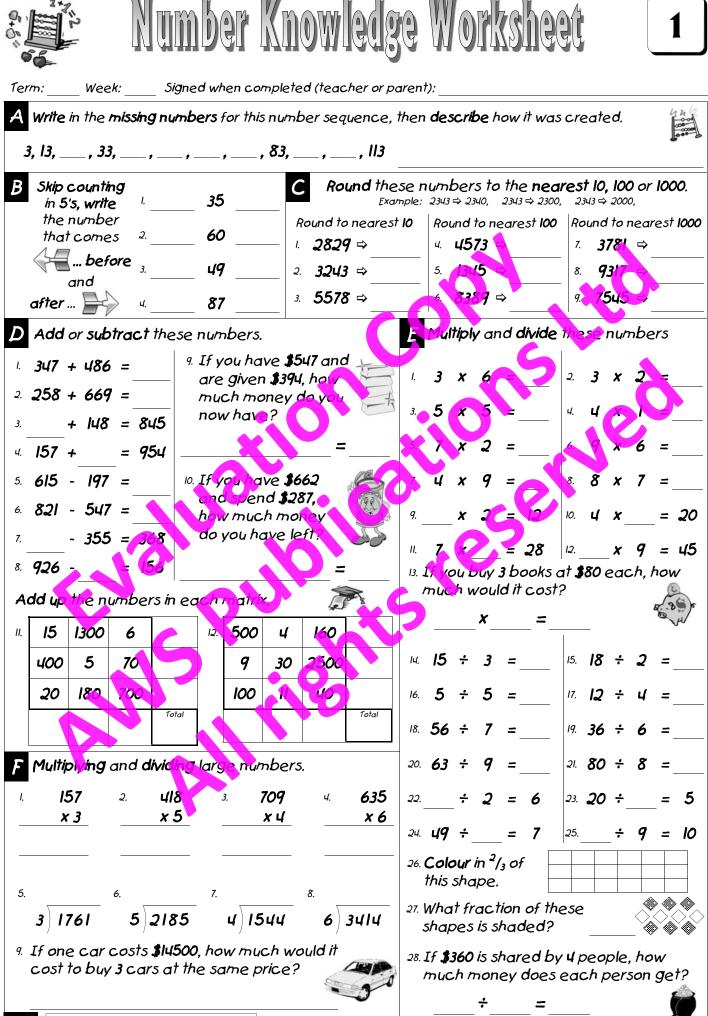
There are 40 activity sheets in this resource. The worksheets are divided into 2 groups of 20 and gradually get more difficult. Below is a summary of what is contained within each group of worksheets.

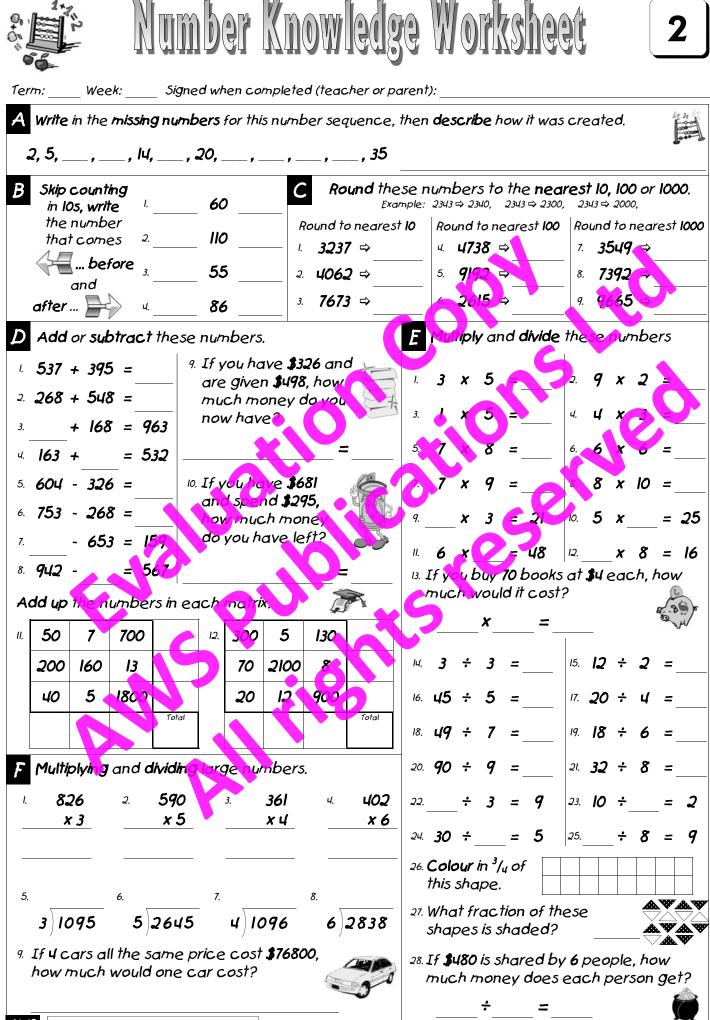


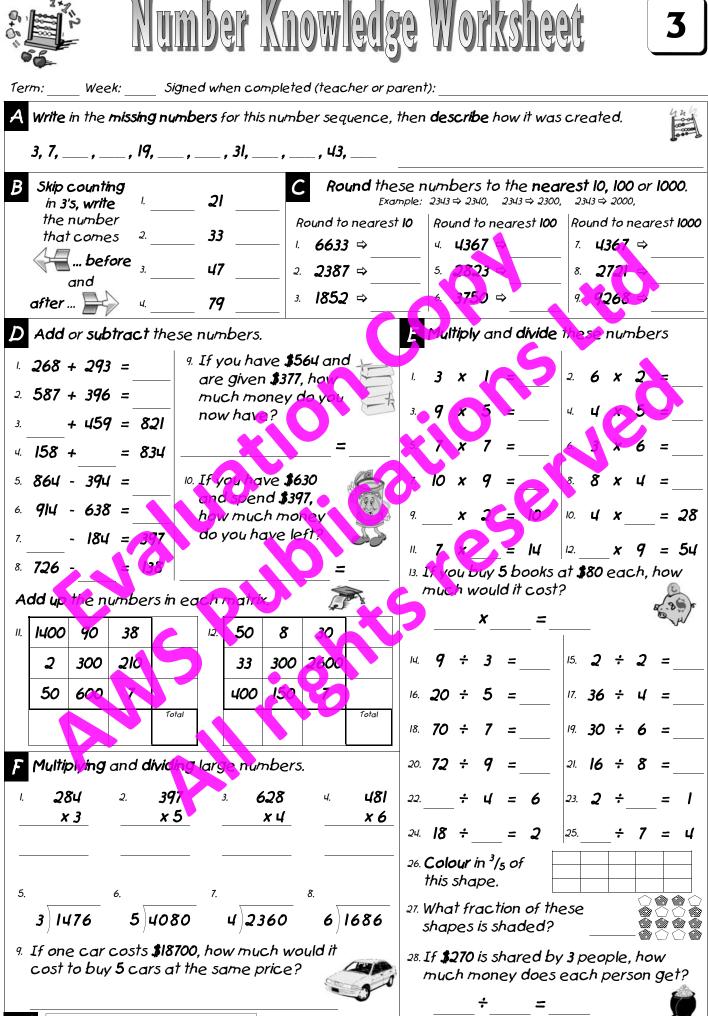
The information below has been included so that parents / care-givers can understand what is the aim of each activity, therefore are able to help.

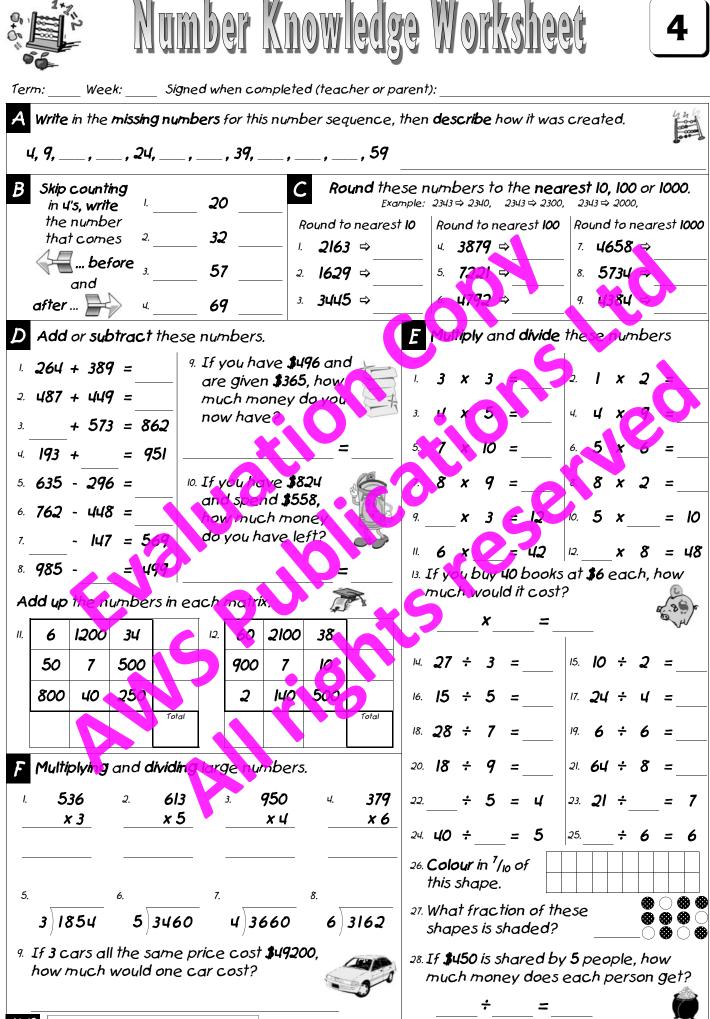
Worksheets 1 to 20							
Worksheet Activity	Teaching Ideas						
Α	<ul> <li>In this activity, pupils are to determine how a sequence of numbers was created, complete the sequence and describe how it was created.</li> <li>Example: 3,,, 33, 43,,, 73,,, 103</li> <li>Starting at 3, skip counting in 10's.</li> </ul>						
В	<ul> <li>In this activity, pupils improve their recall of numbers and develop mental arithmetic skills as they write the numbers that come before and after a given number skip counting in 2'c, 3's, 4's, 5's, 6's, 7's, 8's, 9's or 10's.</li> </ul>						
С	• In this activity, pupils are to round 4 digit numbers to the nearest 10, 100 or 1000 as required.						
	<ul> <li>Questions 1 to 8 involve adding two 3 digit numbers involving carrying on the first 2 digits, with appropriate subtraction combinations and questions rearranged to allow pupils to develop alternative strategies when solving.</li> <li><i>Example:</i> 347 + 486 = 333, 615 - 197 = 410, 607 + 148 = 845, 926 - 770 = 156, etc.</li> <li>Questions 9 &amp; 10 are word probleme, involving adding and subtracting.</li> </ul>						
D	• Questions 11 & 12, a 3 x 3 number matrix is use to enable pupils to utilise any strategy skill they know to solve these problems as quickly as possible. The matrix offers the option of adding across or down, combining numbers that add to a multiple of 10, 100 or 1000 or any other grouping. Example: $\frac{15 \ 1300 \ 6}{400 \ 5} \ 70$ $\frac{5 + 15 = 20}{20 + 180 = 200}$ $\frac{1300 + 700 = 2000}{1300 + 70 + 6 = 776}$ $20 + 200 + 2000 + 470 = 2696$ • Encourage pupils to talk about how they added up the numbers and compare methods used.						
E	<ul> <li>In this activity, questions 1 to 8 revise all multiplication facts for 2's to 10's.</li> <li>In questions 0 to 12, the multiplication facts have been rearranged to allow pupils to develop alternative strategies when solving <i>Lx ample:</i> <u>6</u> x 2 = 12, 10 x <u>3</u> = 30</li> <li>Question 13 is a word problem involving multiplication.</li> <li>Questions 14 to 21 revise the division facts for 2's to 10's.</li> <li>For questions 22 to 2s the division facts have been rearranged to allow pupils to develop alternative strategies when solving. <i>Example:</i> <u>12</u> ÷ 2 = 6, 25 ÷ <u>5</u> = 5, etc.</li> <li>In question 26 pupils are to shade in a fraction of the shape.</li> <li>In question 27 pupils are to state what fraction of a group of shapes has been shaded and simplify the fraction if possible.</li> <li>Question 28 is a word problem involving division / sharing money.</li> </ul>						
F	• In this activity, pupils are to utilize the multiplication and division facts to solve problems involving large numbers, plus a word problem involving either multiplication or division. Encourage pupils to use rounding skills to mentally check sensibility of their answers. Example: $\frac{157}{x3}$ $\frac{587}{3\sqrt{1761}}$ Check sensibility of answers by rounding 160 x 3 = 480, 1800 ÷ 3 = 60						

Worksheets 21 to 40								
Worksheet Activity	t Teaching Ideas							
Δ	<ul> <li>In this activity, pupils are to determine how a sequence of numbers was created, complete the sequence and describe how it was created.</li> </ul>							
	Example: 3,,, 21, 27,,, 51,, 69 Starting at 3, <b>skip</b> counting in <b>6's</b> .							
В	<ul> <li>In this activity, pupils improve their recall of numbers and develop mental arithmetic skills as they write the numbers that come before and after a given number skip counting in 2's, 3's, 4's, 5's, 6's, 7's, 8's, 9's or 10's.</li> </ul>							
С	• In this activity, pupils are to round 4 digit numbers to the nearest 10, 100 or 1000 as required.							
	<ul> <li>Questions 1 to 8 involve adding two 3 digit numbers involving carrying on the all 3 digits, with appropriate subtraction combinations and questions rearranged to allow pupils to develop alterna strategies when solving.</li> <li>Example: 278 + 962 = <u>1240</u>, 1340 - 362 = <u>978</u>, <u>896 + 374 = 1270</u>, 1554 - <u>897 = 557</u>, orc.</li> </ul>							
	<i>Example:</i> $278 + 962 = \underline{1240}$ , $1340 - 362 = \underline{978}$ , $\underline{896} + 374 = 1270$ , $1554 - \underline{897} = 557$ , <i>etc.</i> • Questions 9 & 10 are word problems, involving adding and subtracting.							
D	• Questions 11 & 12, a 3 x 3 number matrix is use to enable pupils to utilise any strategy skills they know to solve these problems as quickly as possible. The matrix offers the option of adding across or down, combining numbers that add to a multiple of 10, 100 or 1000 or any other grouping.							
	Example:       91       5       120 $5 + 5 = 10$ 36       1970       34 $36 = 40$ 36       1970       34 $30 + 102 = 140$ 38       5       192 $10 + 40 + 2000 + 140 + 211 = 2101$							
	<ul> <li>Encourage pupils to talk about how they added up the numbers and compare methods used.</li> </ul>							
E	<ul> <li>In this activity, questions 1 to 8 revise all multiplication facts for 2's to 10's. The 2, 3, 4 &amp; 5 multiplication facts are written as 20's, 30's 40's &amp; 50's. <i>Example: 20 x 6 = <u>120</u>, 5 x 5 = <u>2010</u>, x x 10 = <u>70</u>, etc.</i></li> <li>In questions 9 to 12, the multiplication facts have been rearranged to allow pupils to develop alternative strategies when solving. <i>Example: <u>6</u> x 20 = 120, 50 x <u>3</u> = 150, etc.</i></li> <li>Question 13 is a word problem involving multiplication.</li> <li>Questions 14 to 21 revise the division facts for <u>2</u> &gt; to 10's.</li> <li>For questions 22 to 25, the division facts have been rearranged to allow pupils to develop alternative strategies when solving. <i>Example: <u>12</u> ÷ 2 = 6, 25 ÷ <u>5</u> = 5, etc.</i></li> <li>Question 26 is a word problem involving division / sharing money.</li> <li>In questions 27 to 28, pupils utilize division skills as they find a fraction of a money total. <i>Example: Find <sup>1</sup>/<sub>2</sub> ot \$500, Find <sup>3</sup>/<sub>4</sub> of \$600, etc.</i></li> <li>In questions 1 to 4 of this activity, pupils are to utilize the multiplication and division facts to solve</li> </ul>							
	problems involving large numbers. Encourage pupils to use rounding skills to mentally check sensibility of their answers.							
F	$679$ x 3 $439$ Check sensibility of answers by roundingExample: $2037$ $6$ $2634$ $700 \times 3 = 2100$ , $3000 \div 6 = 500$							
	<ul> <li>In questions 5 to 7, everyday items are priced and pupils are to workout the total of buying several items or the unit price when given the cost of several.</li> <li><i>Example:</i> How much would it cost to buy 4 cell phones? How many computers could you buy with \$5000 and how much money will you have left?</li> </ul>							

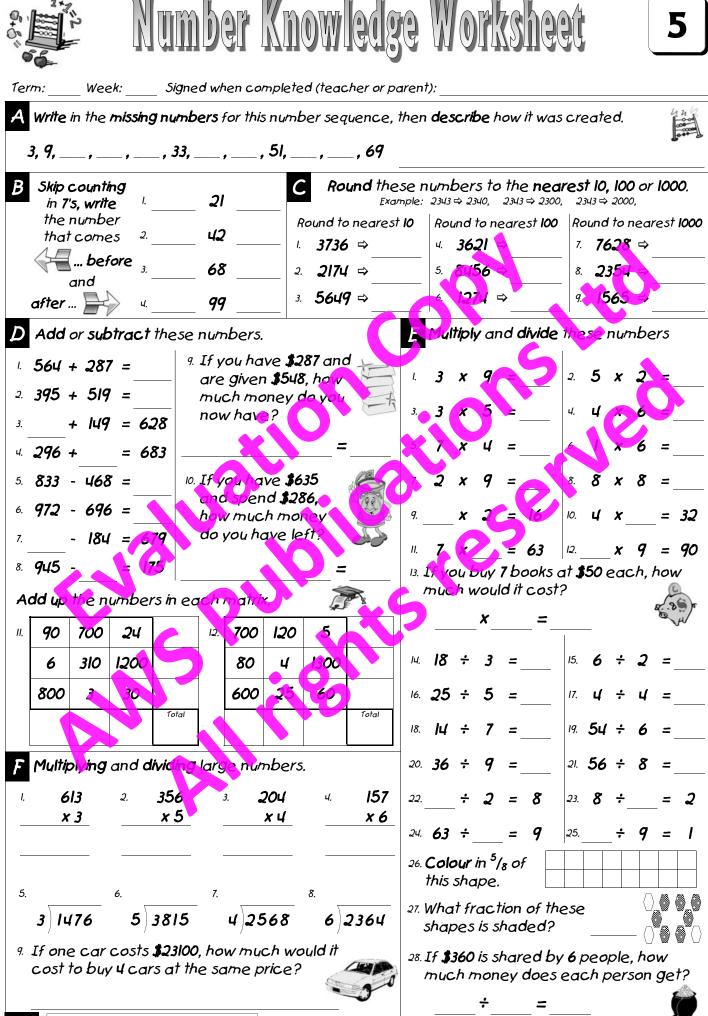


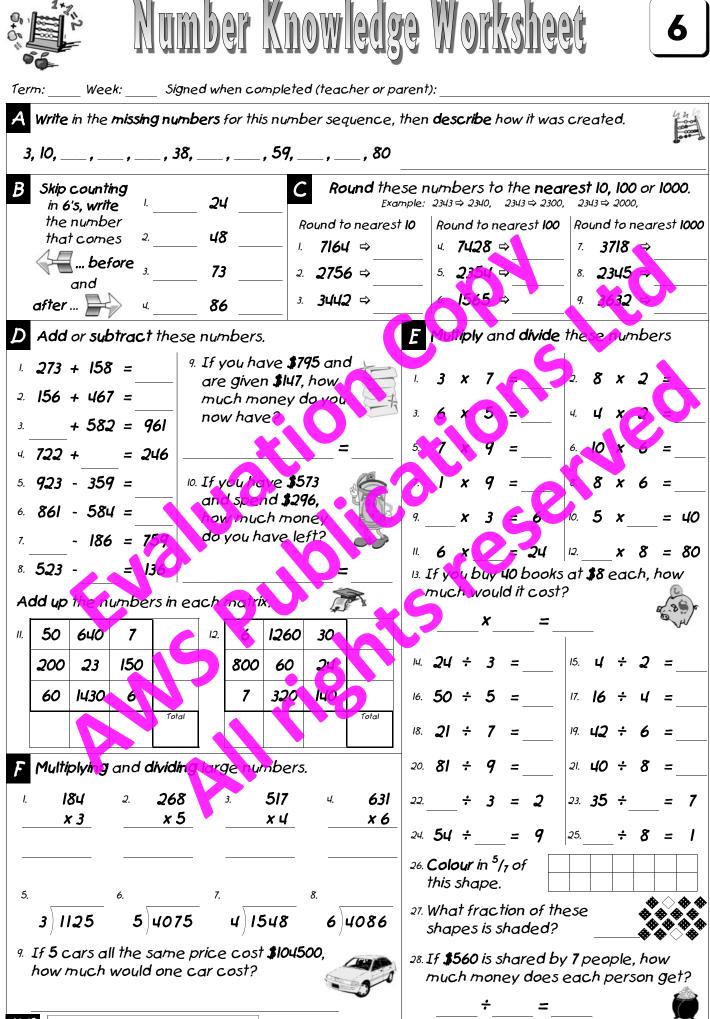




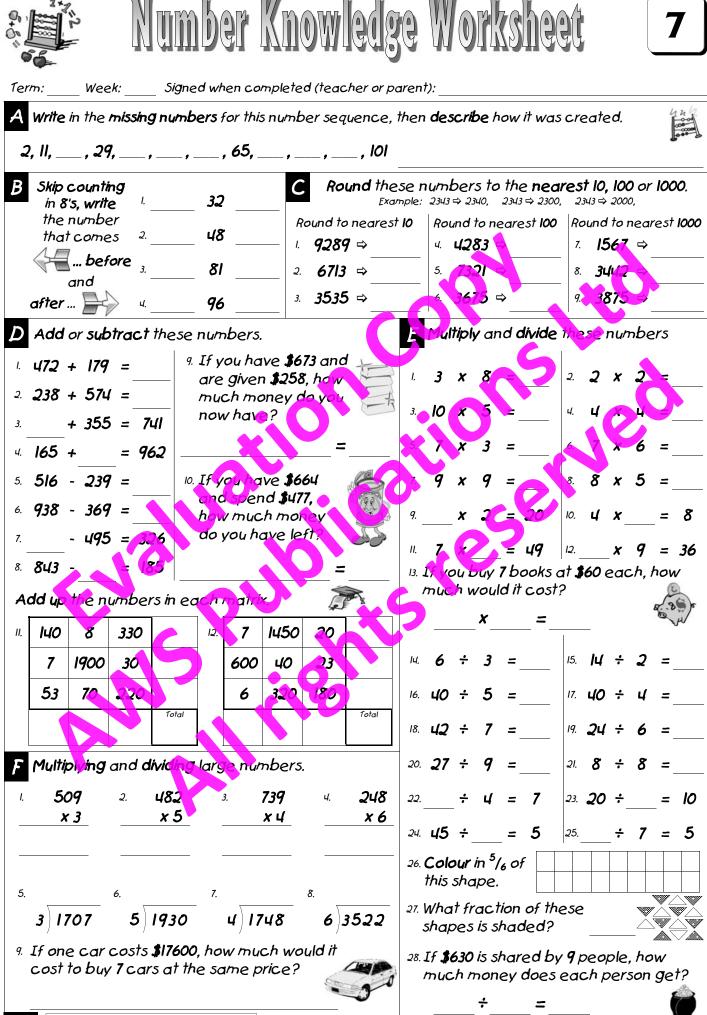


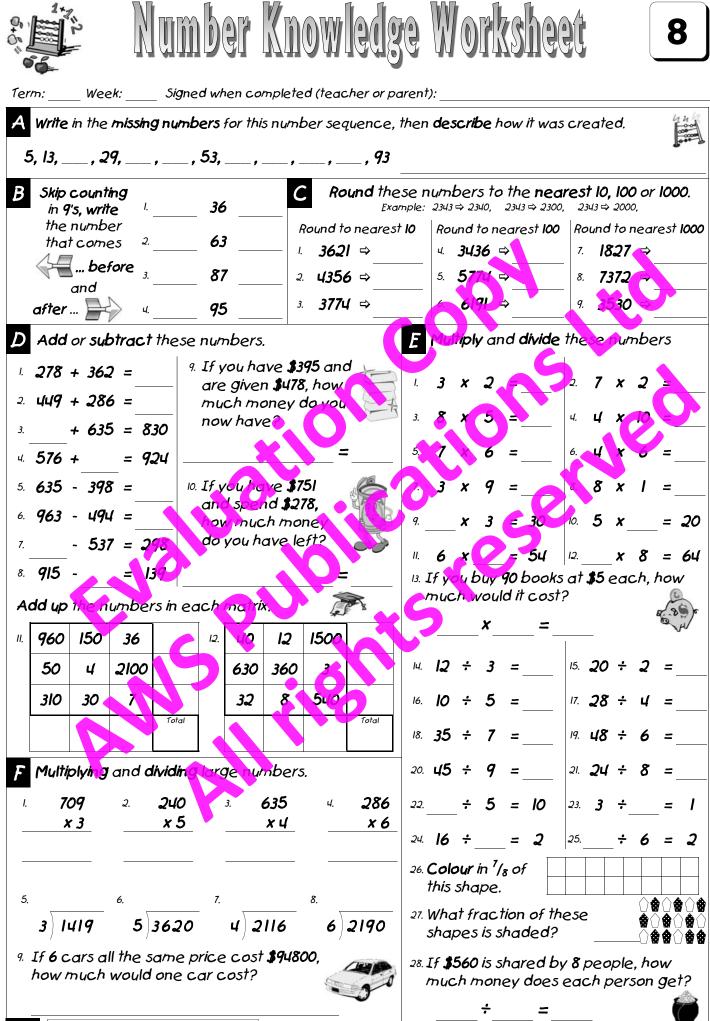
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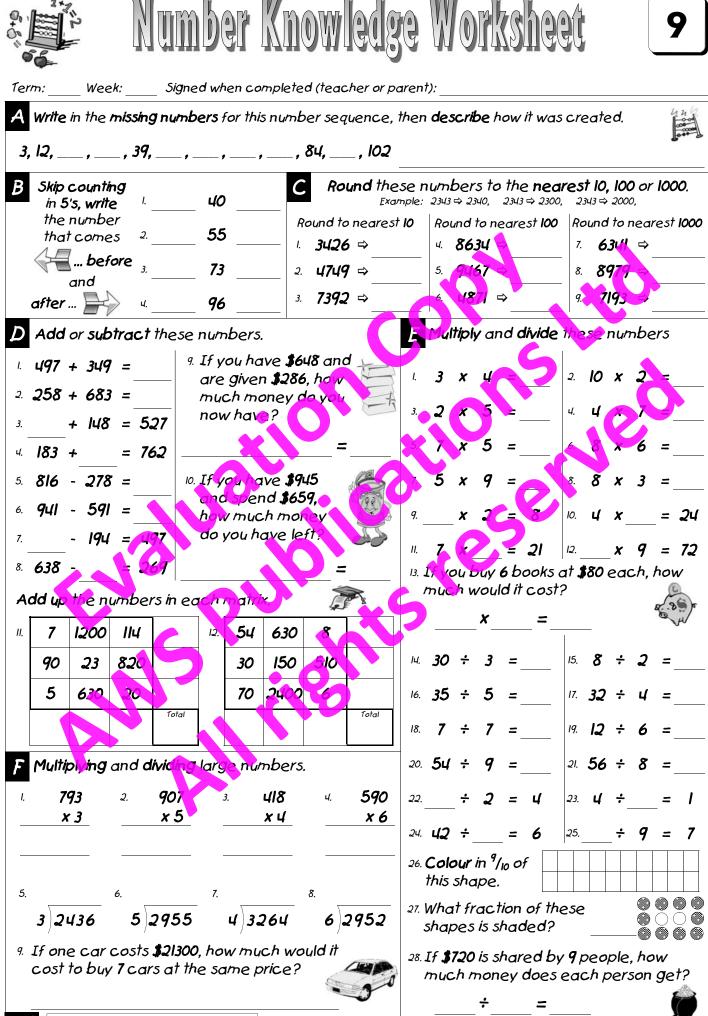


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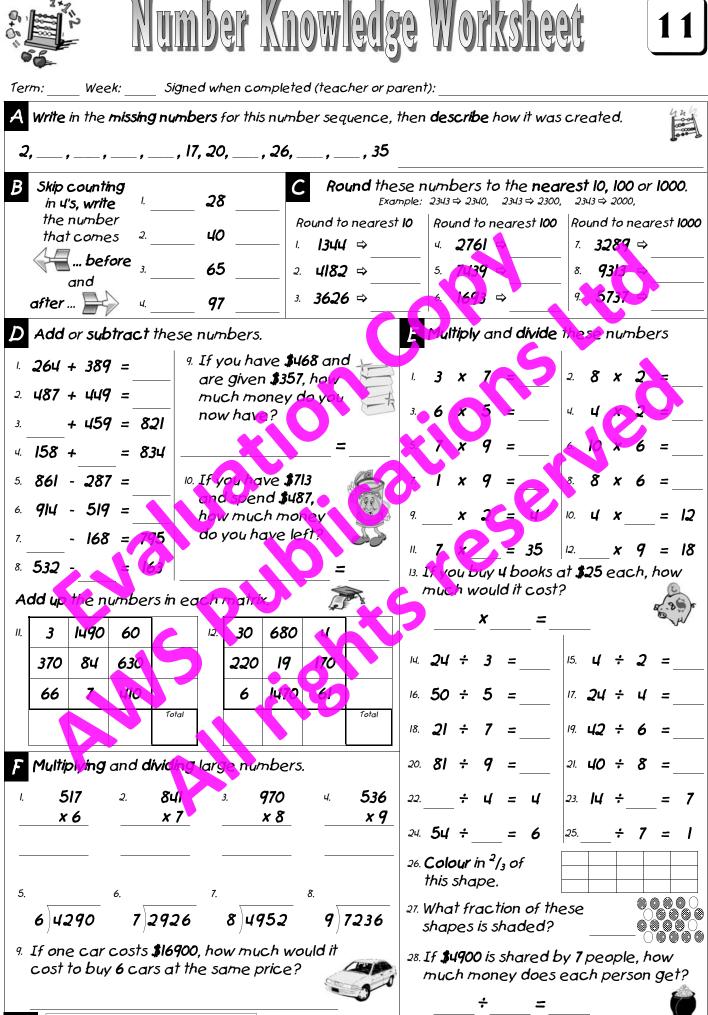


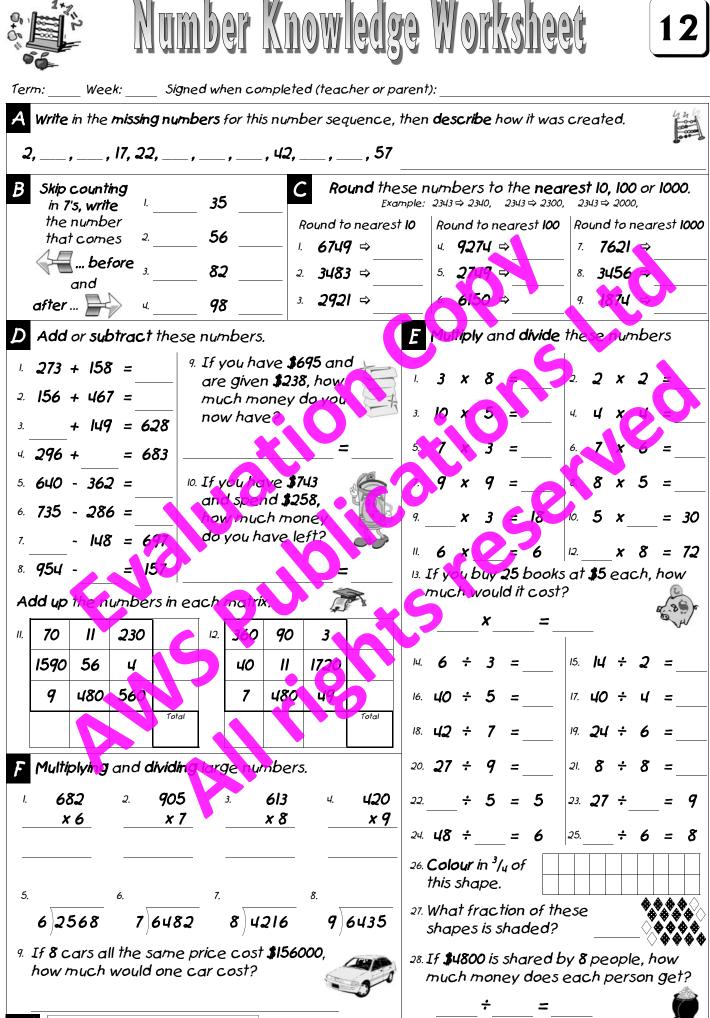


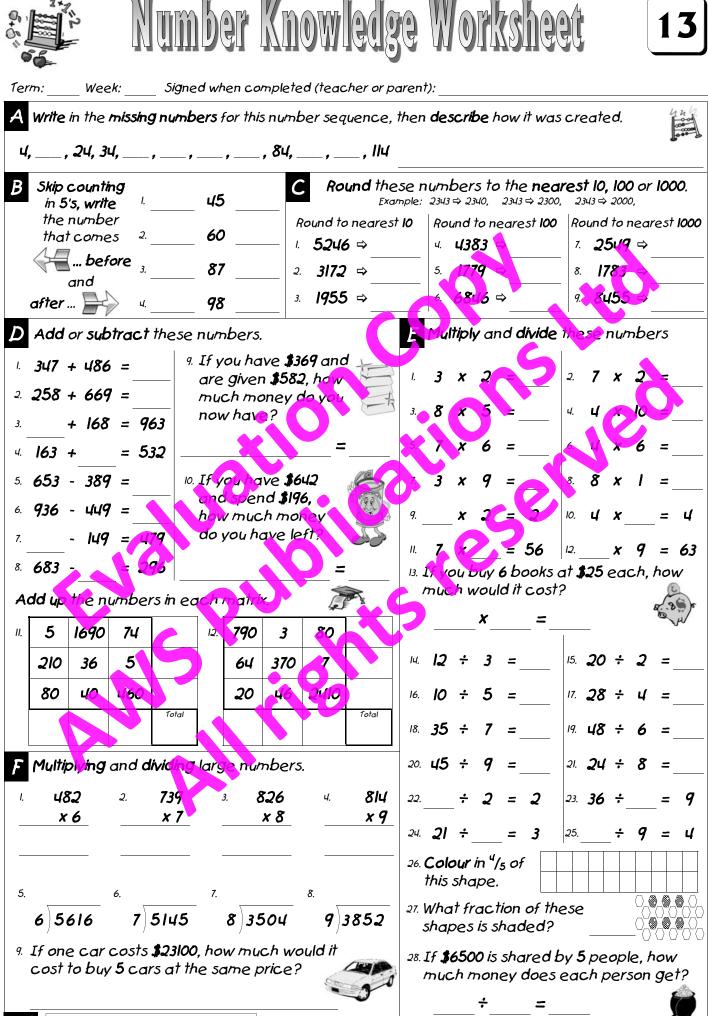
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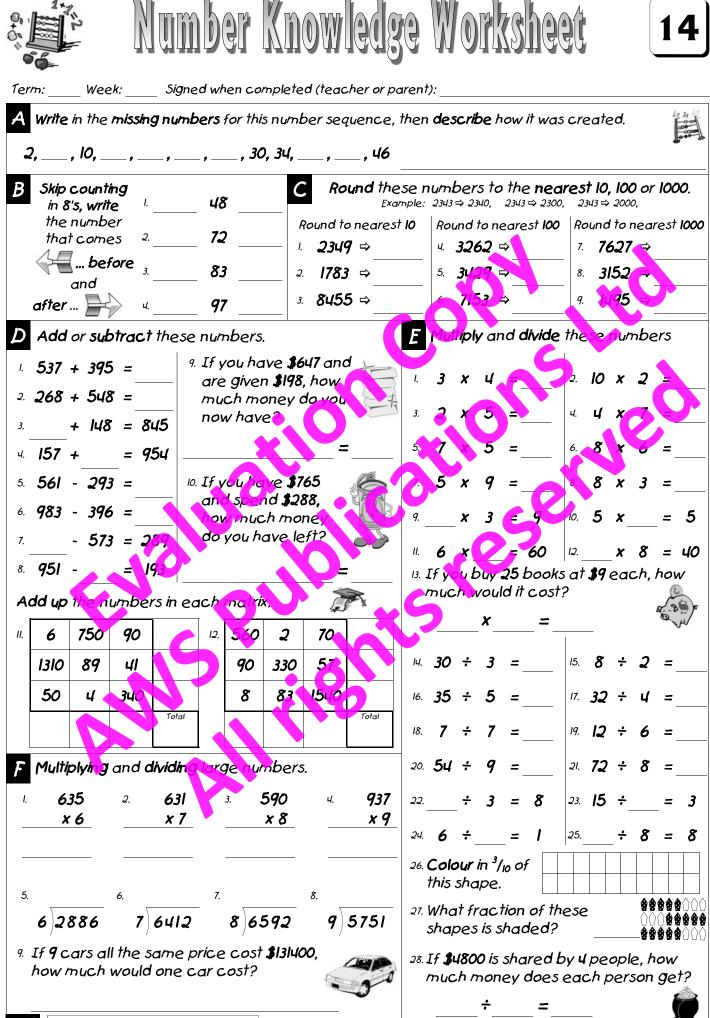




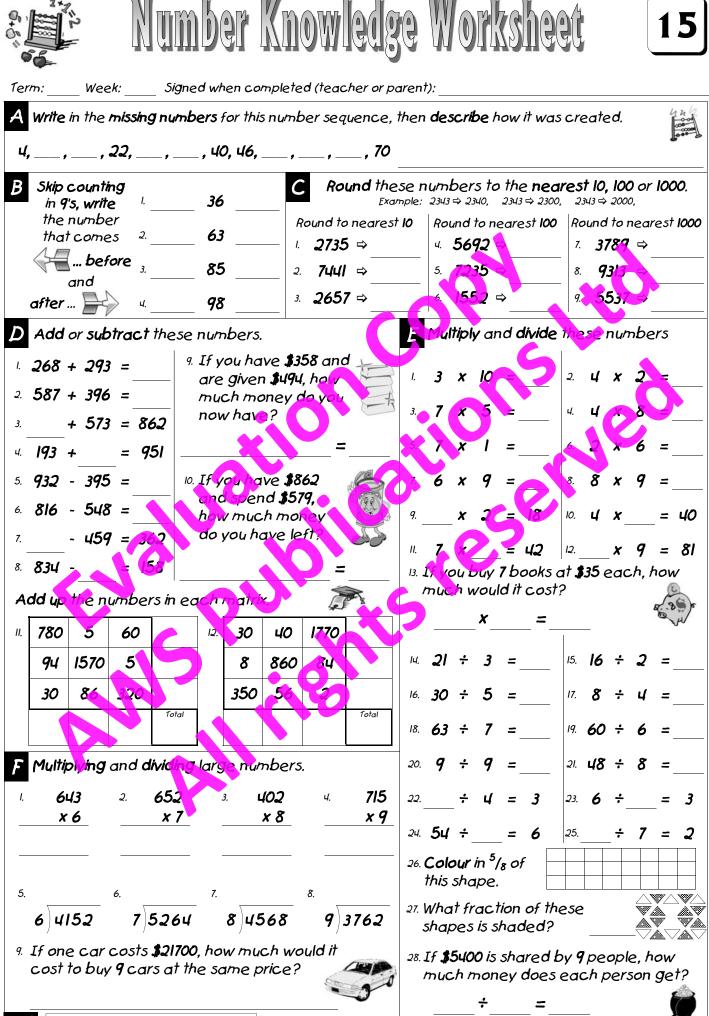


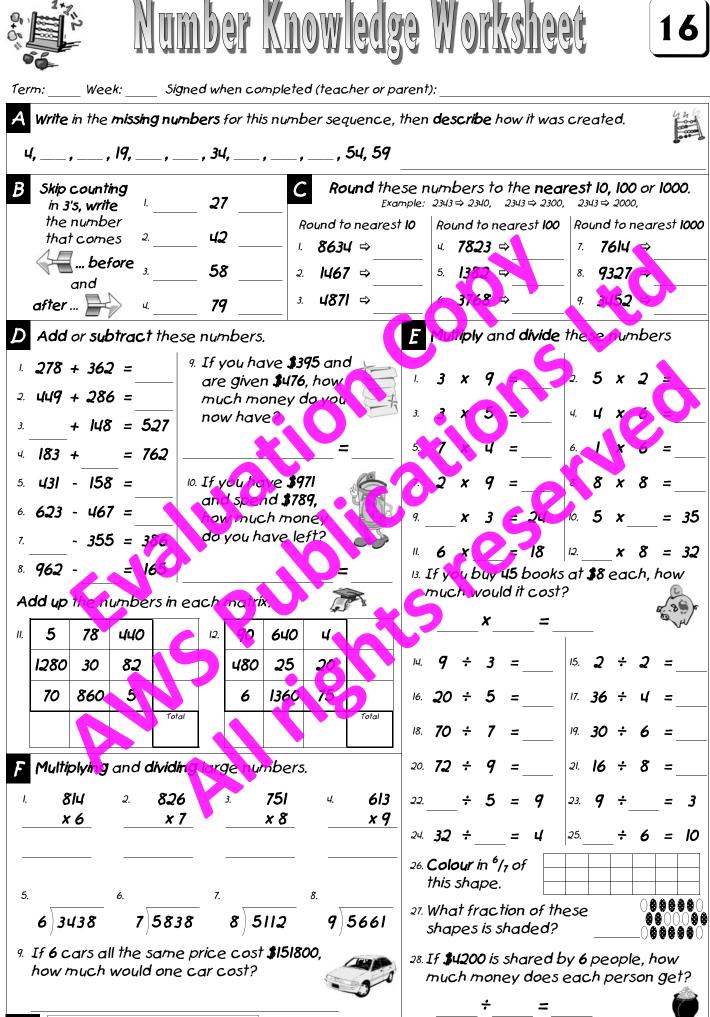


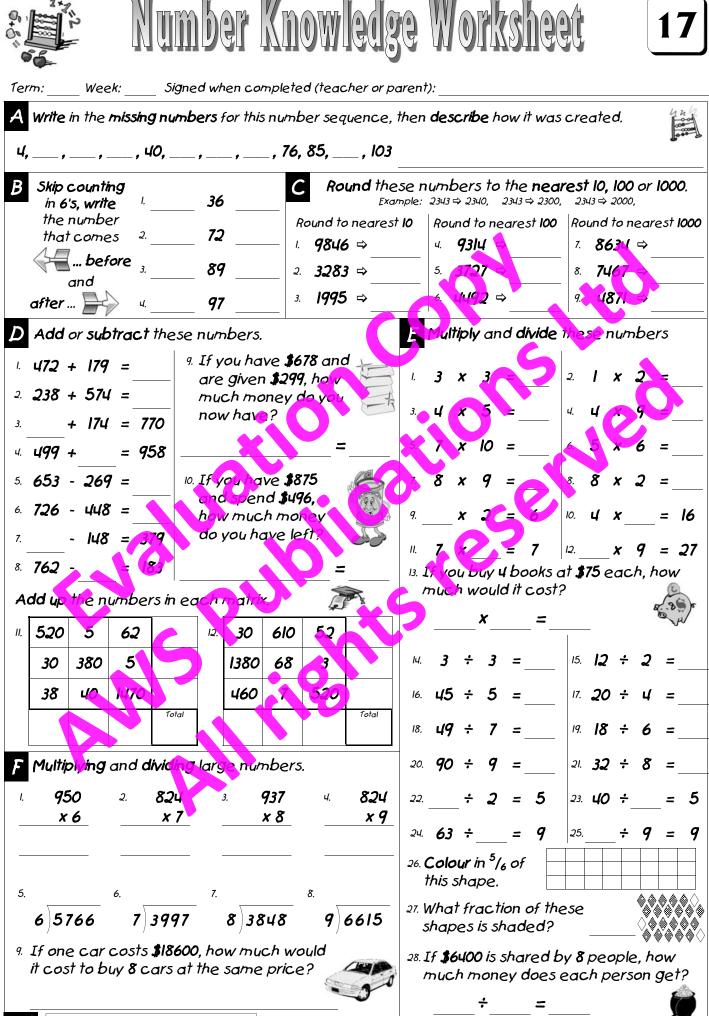




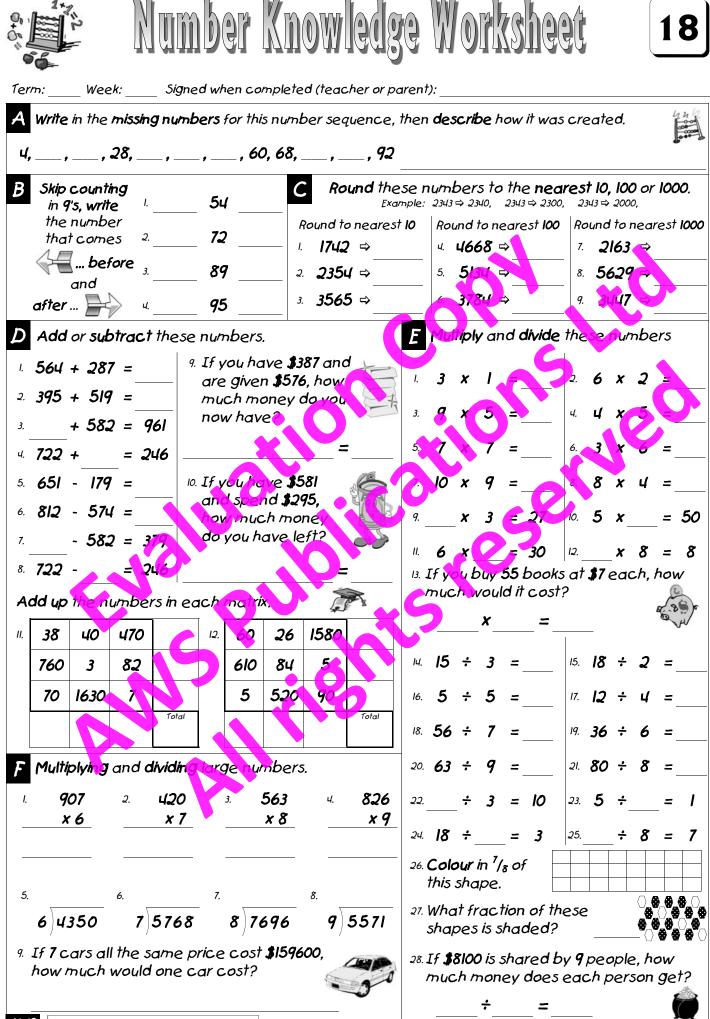
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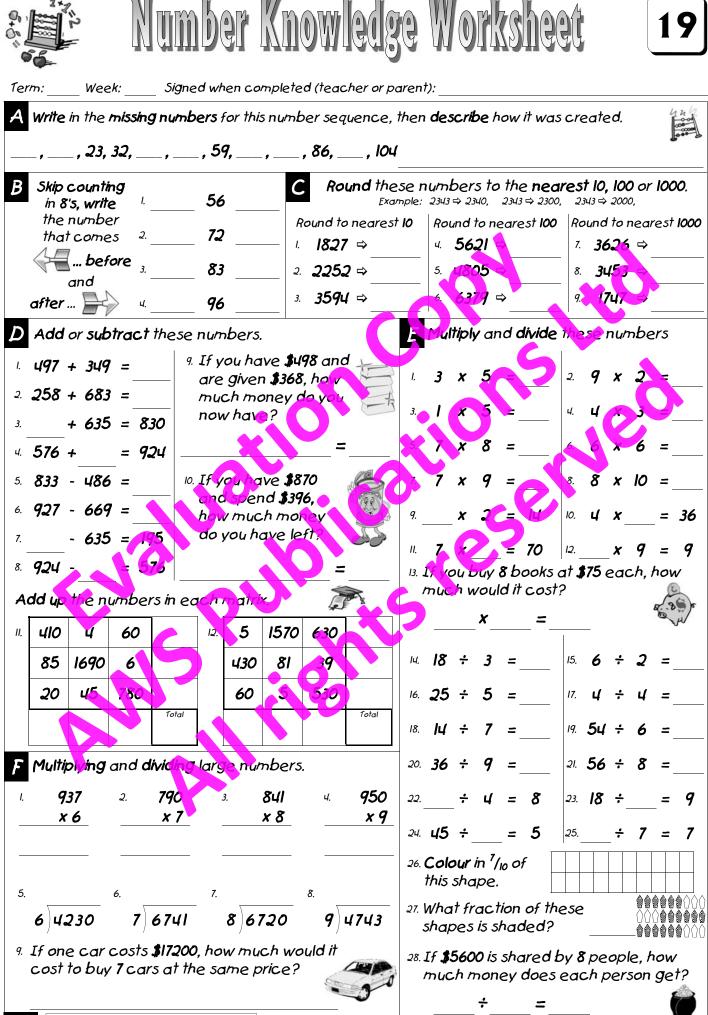


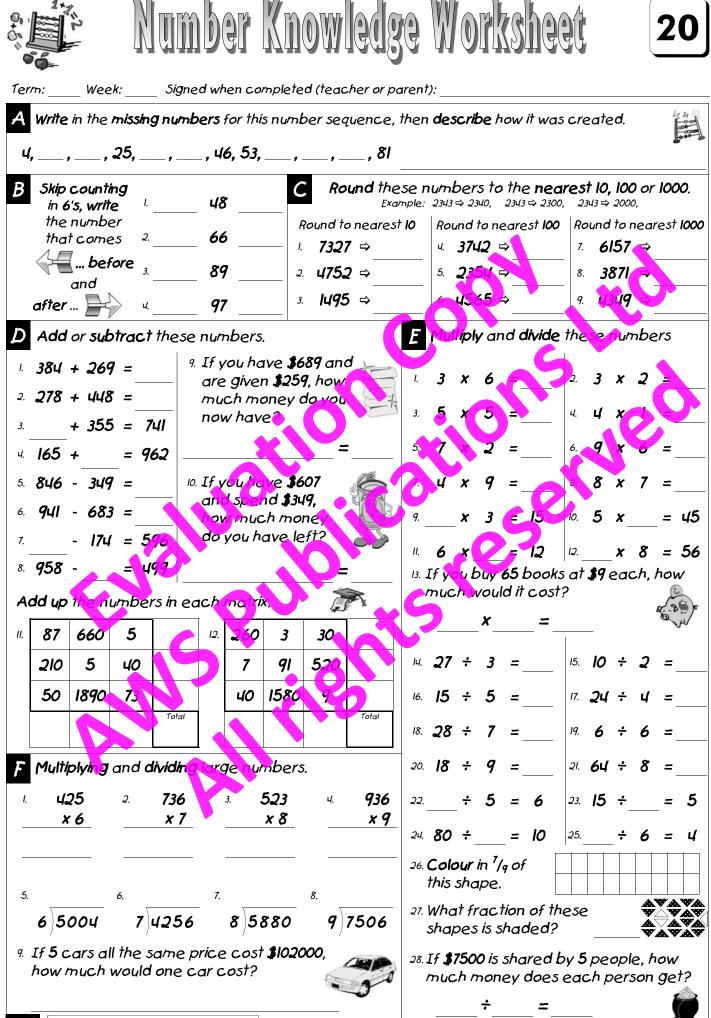


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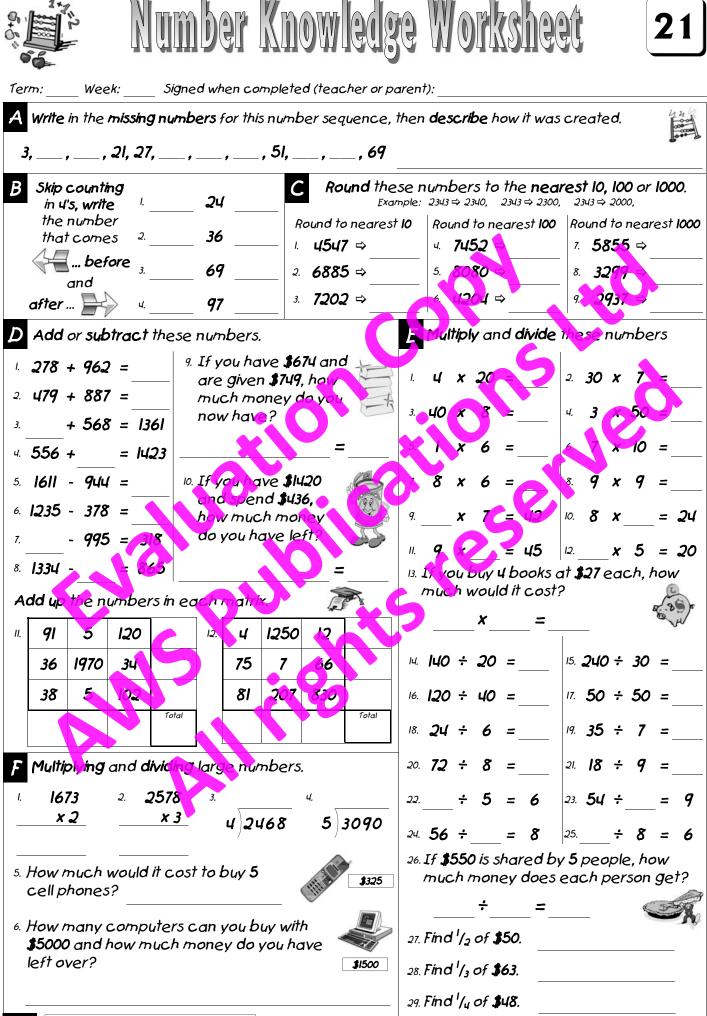


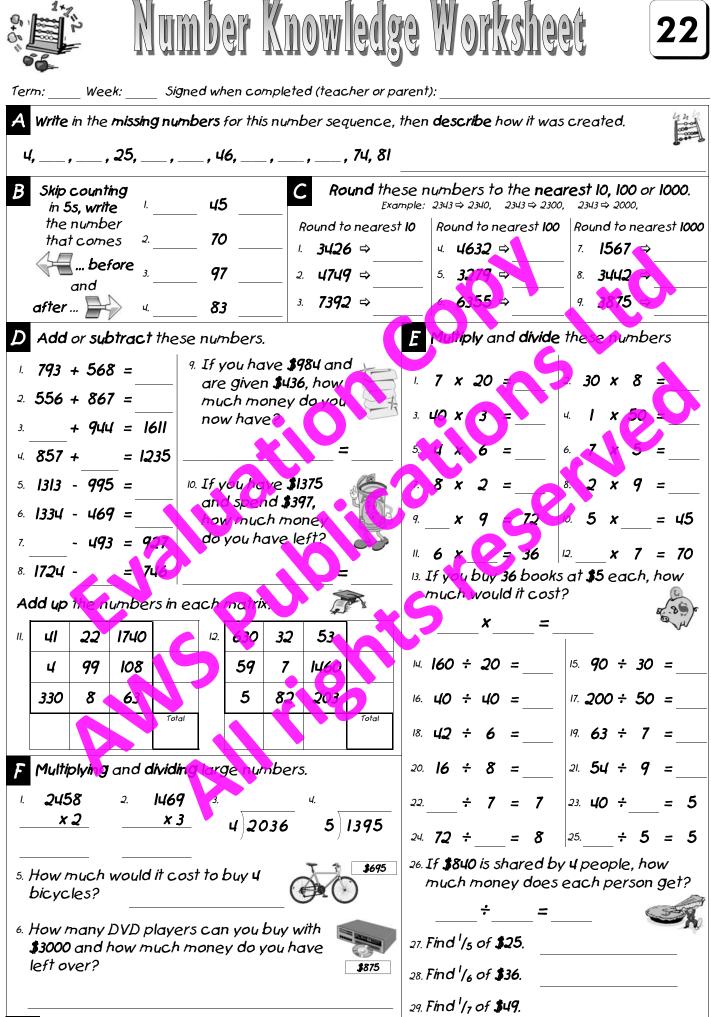
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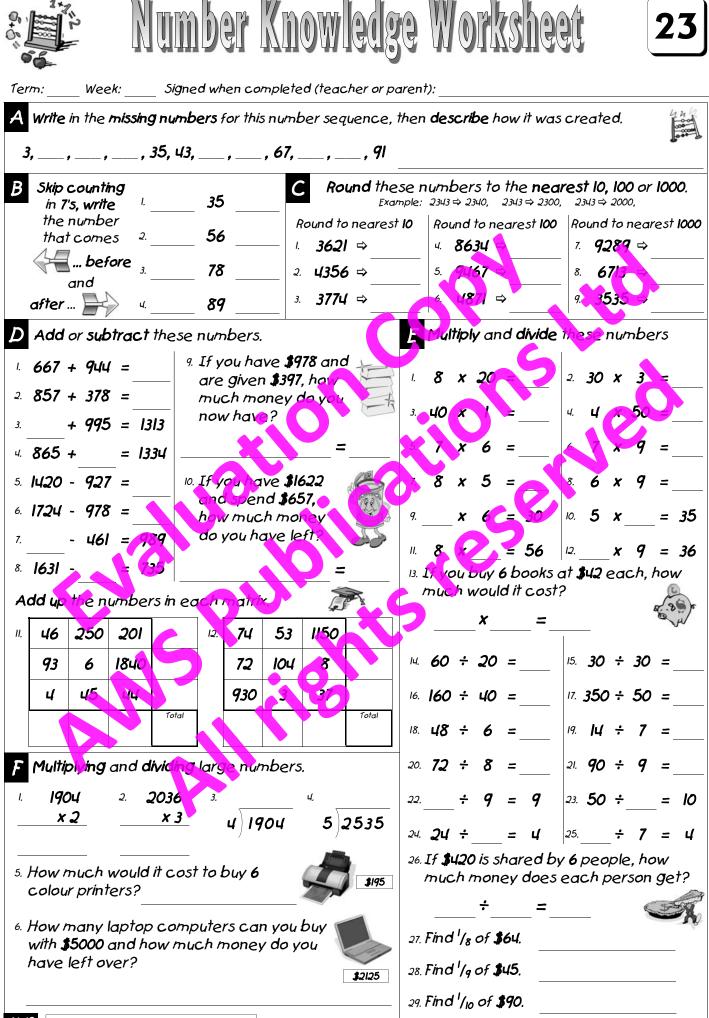


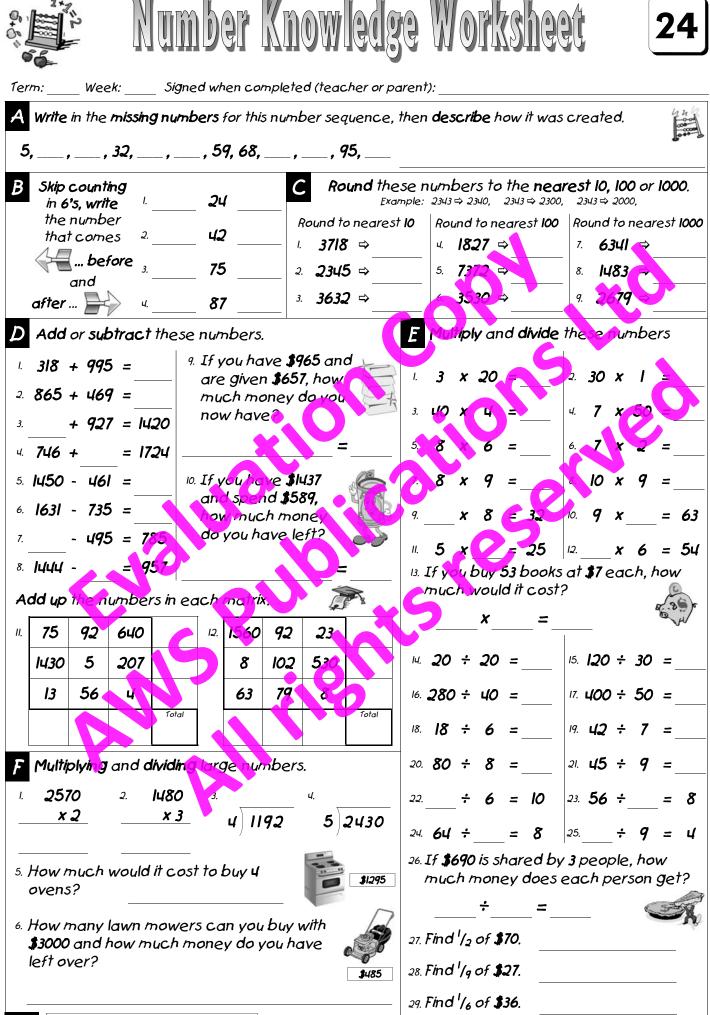


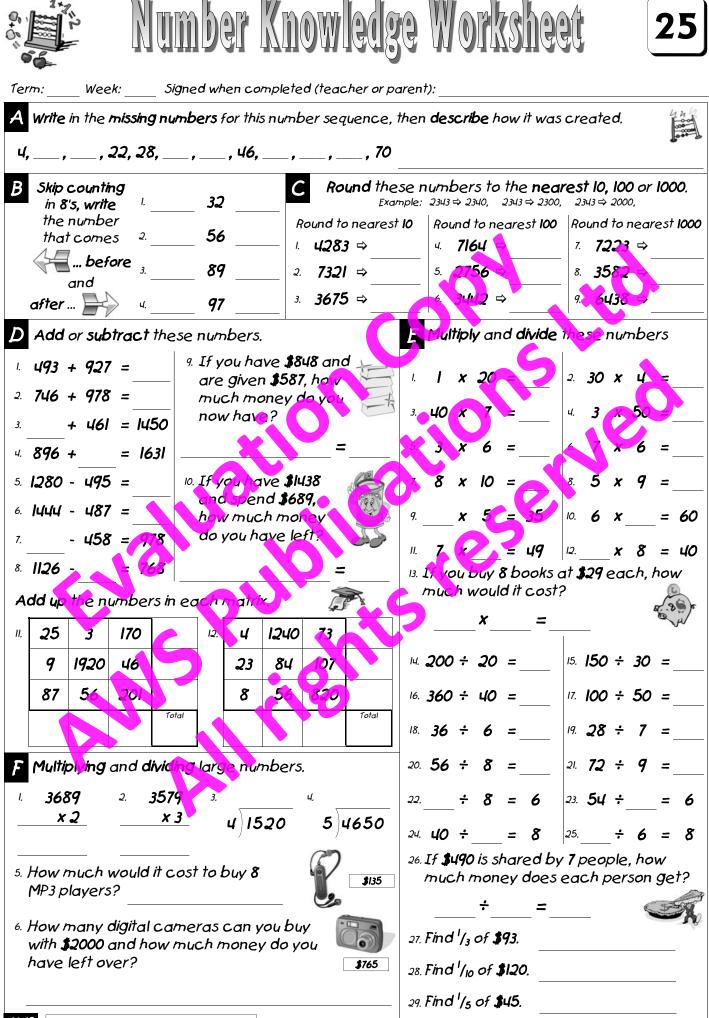
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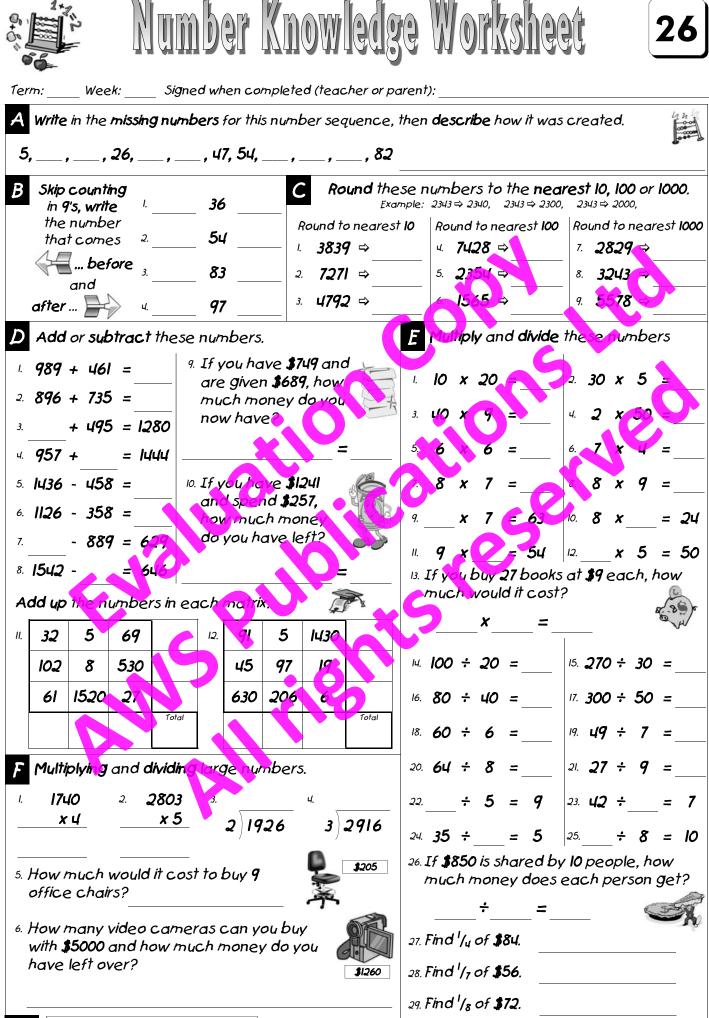


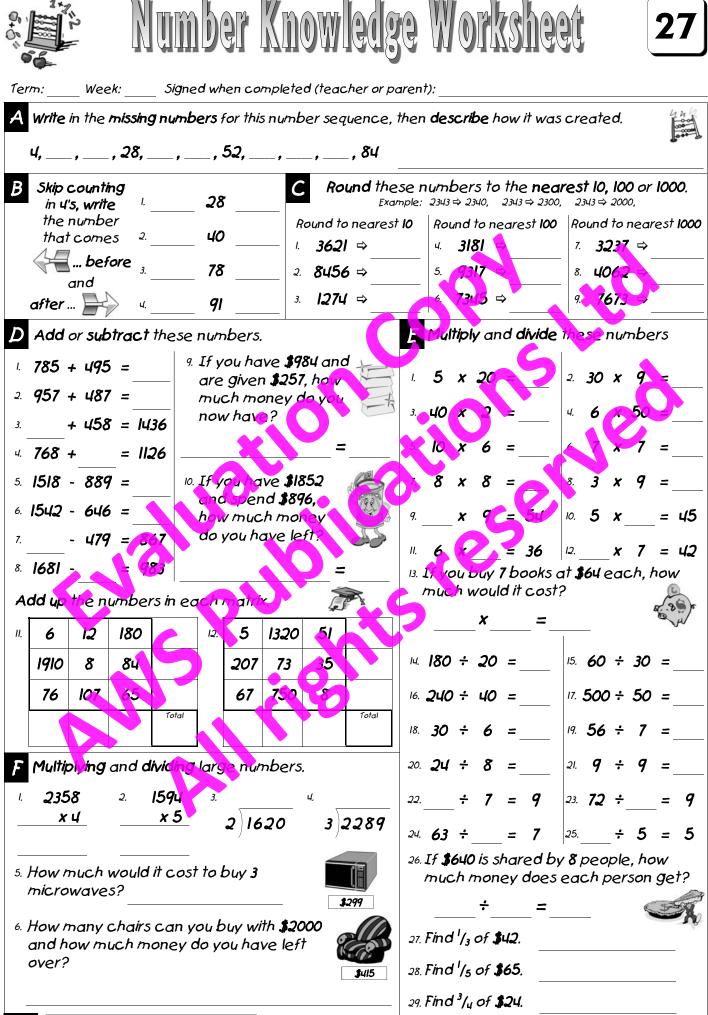




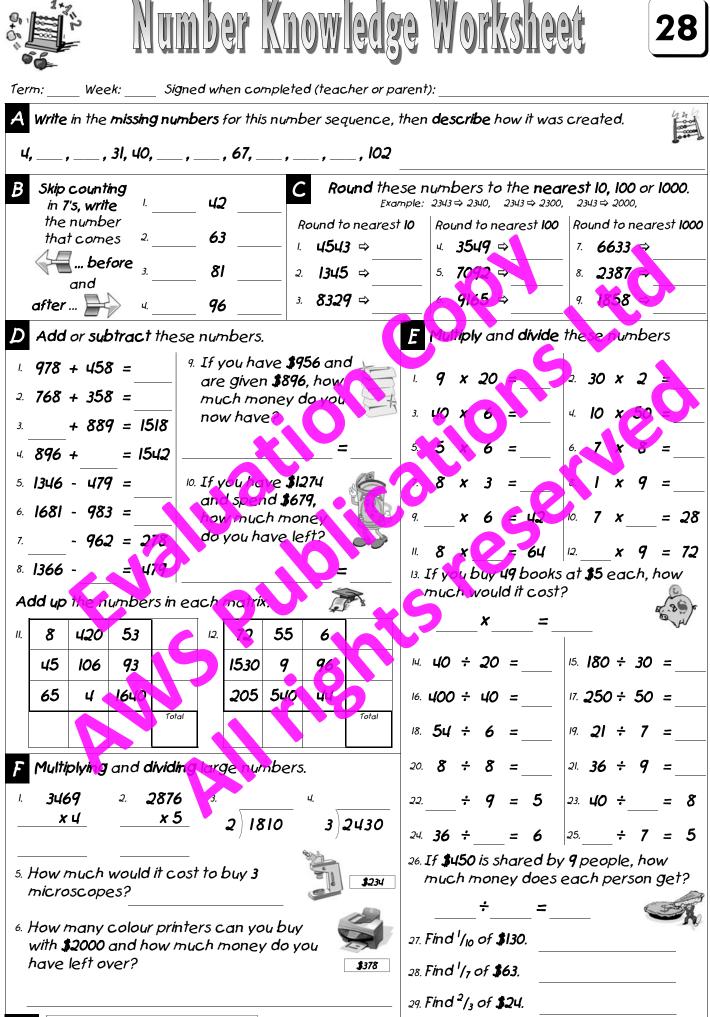


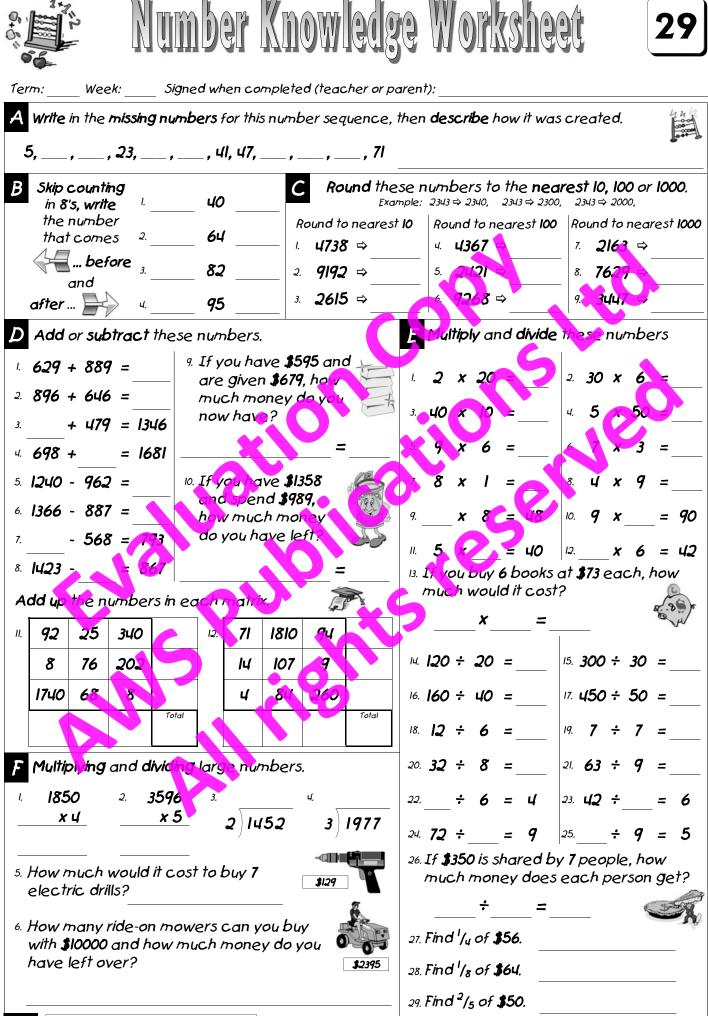


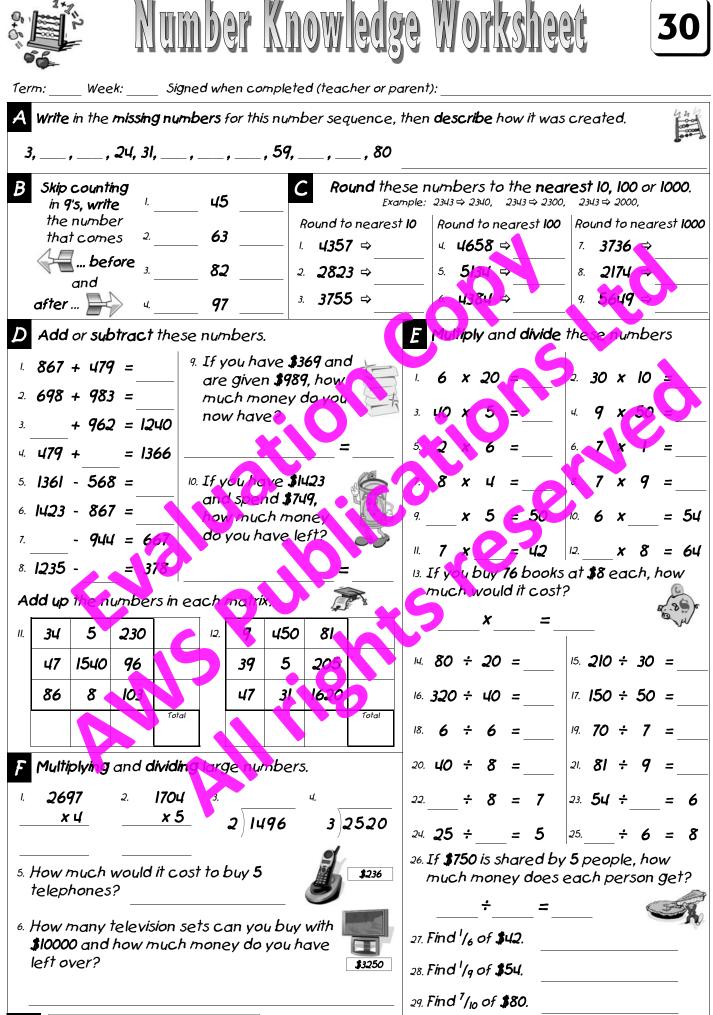


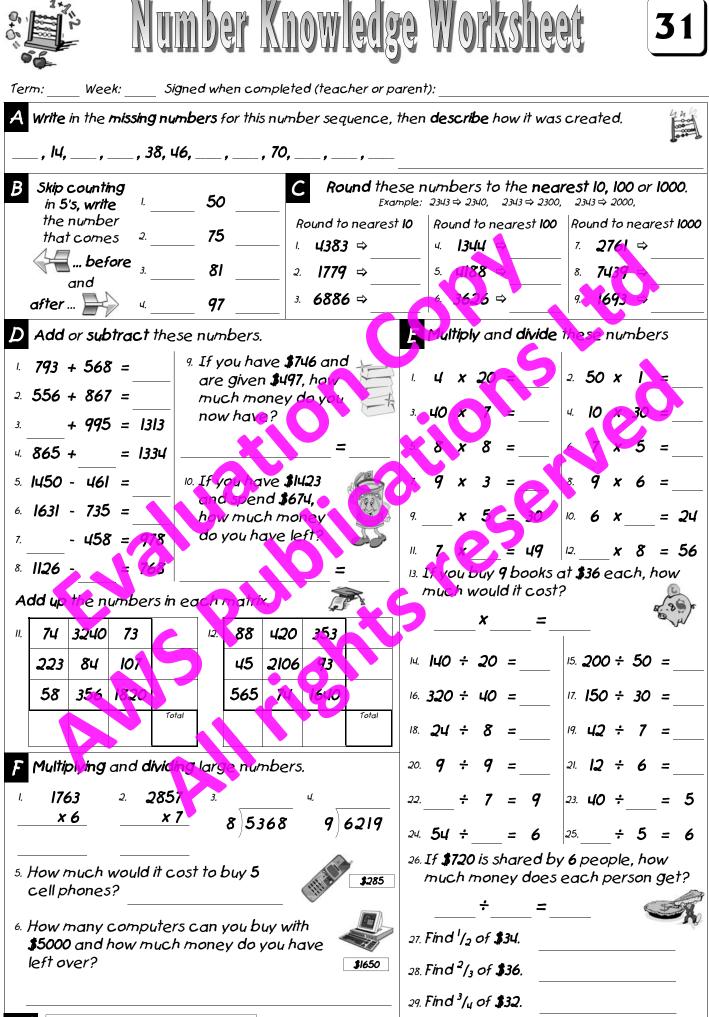


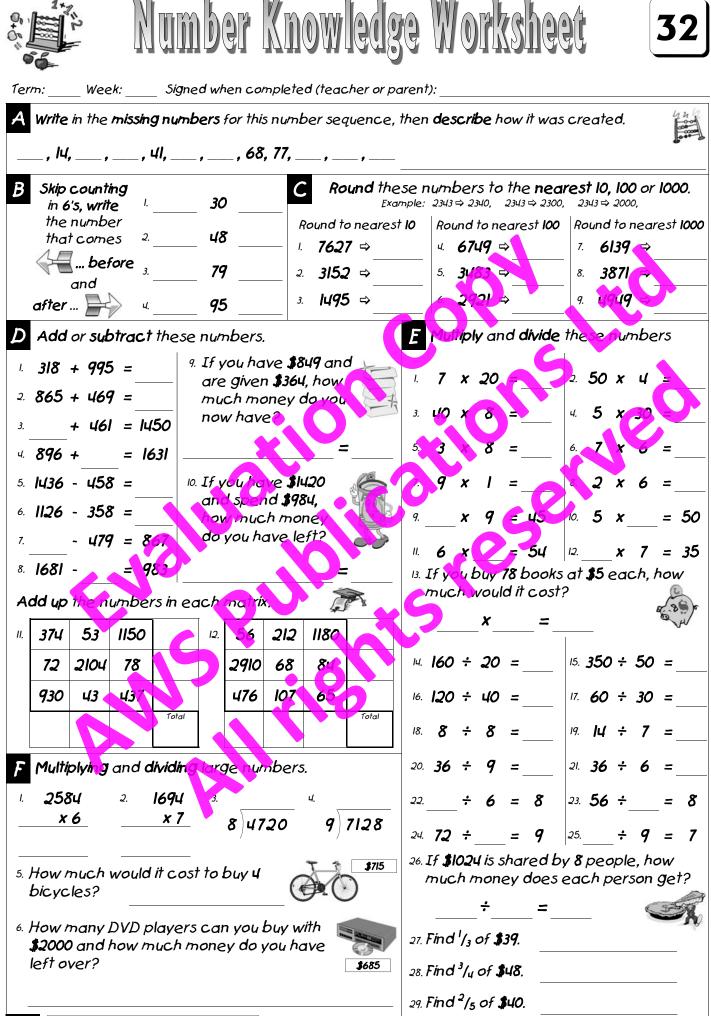
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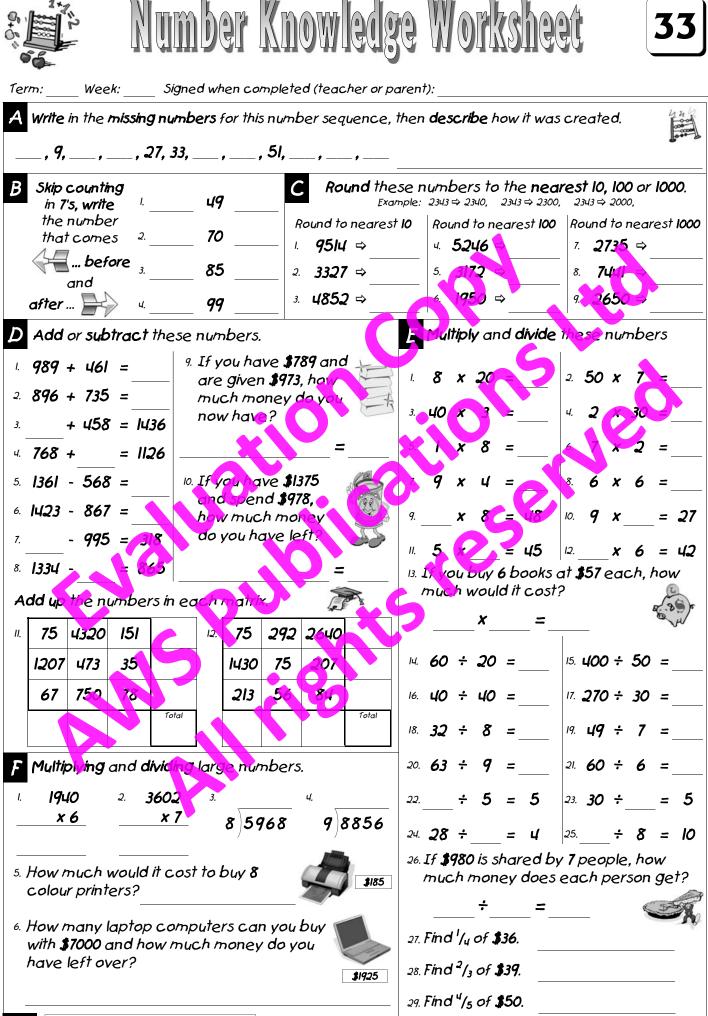






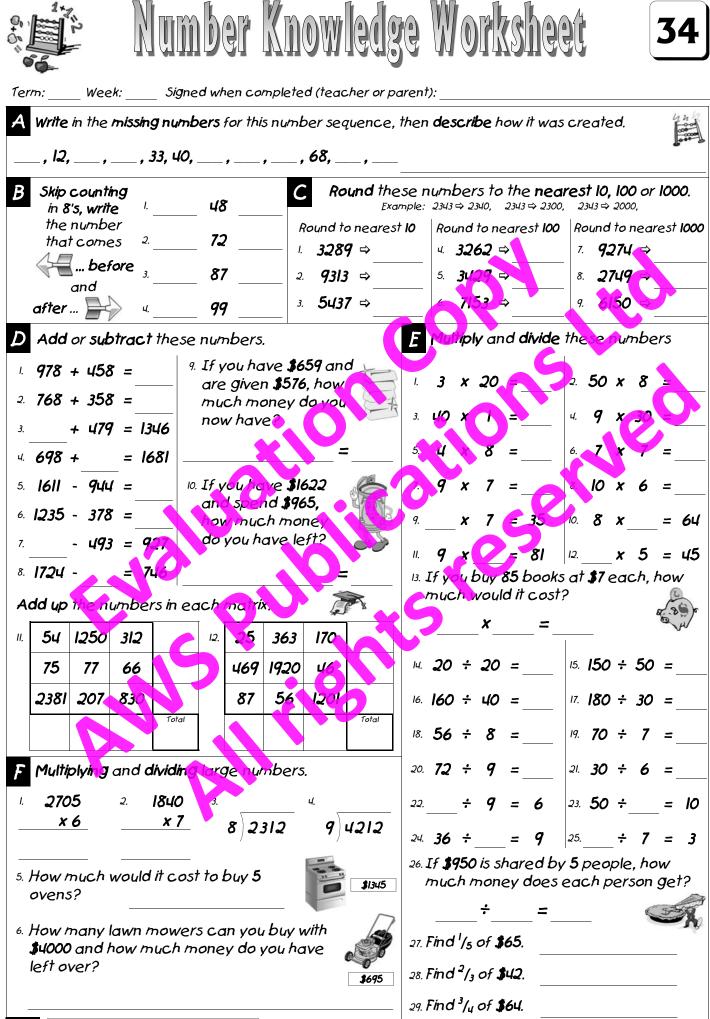
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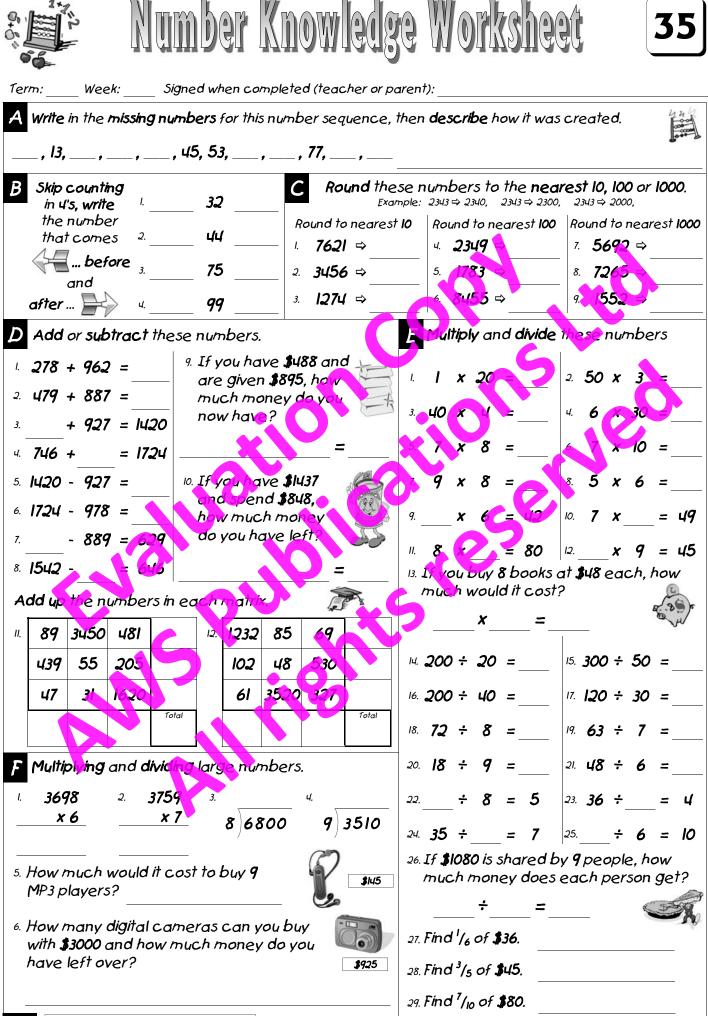


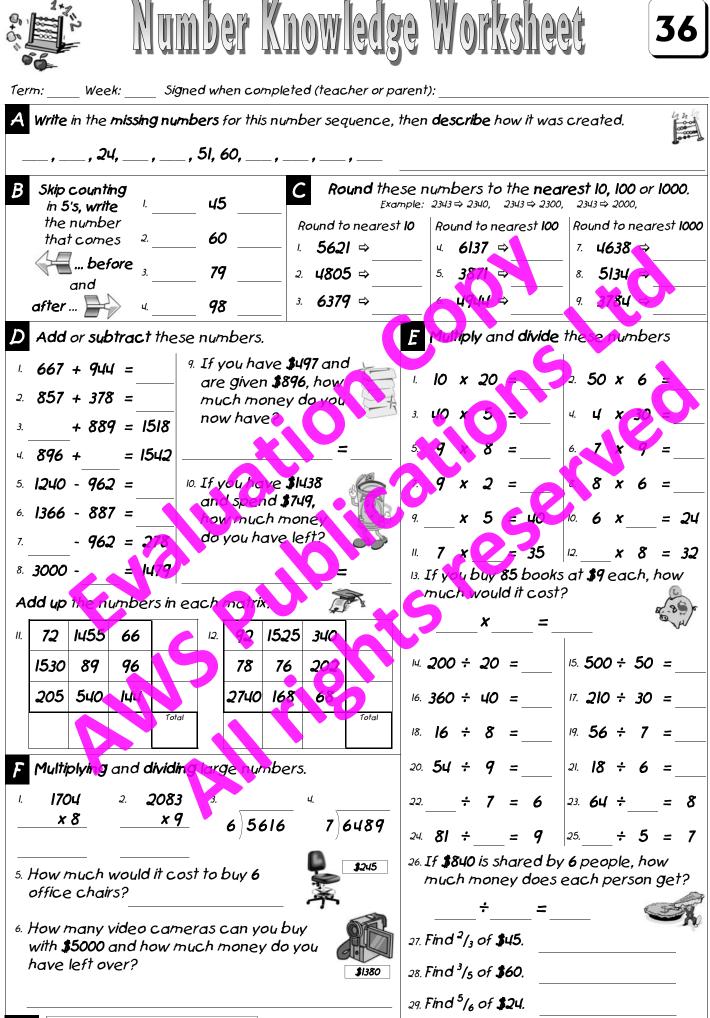
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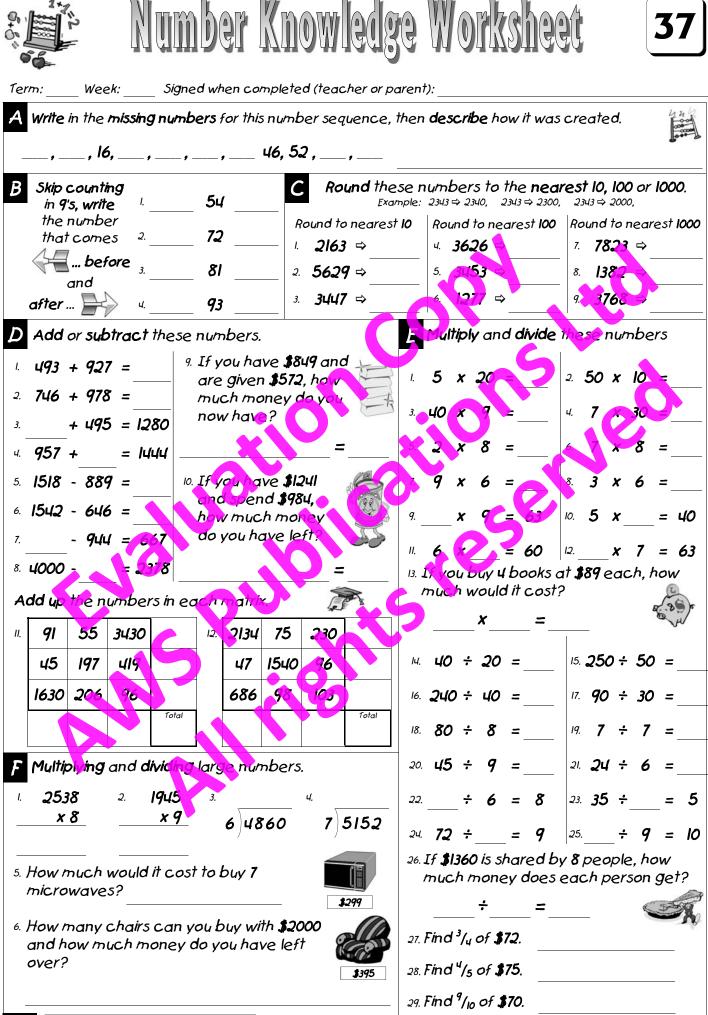
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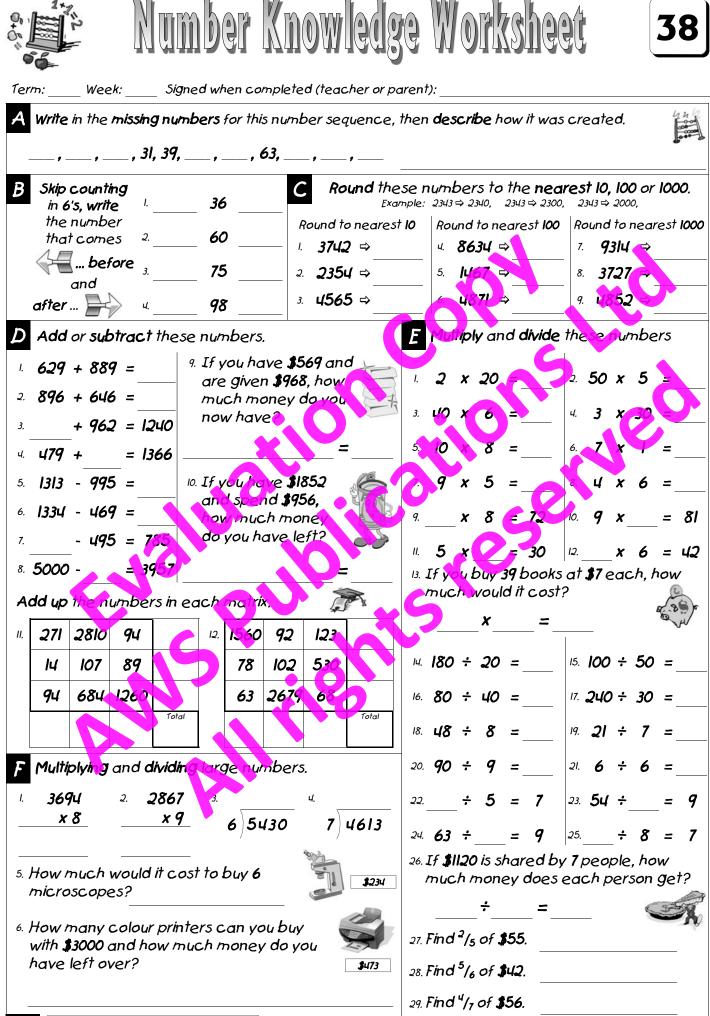


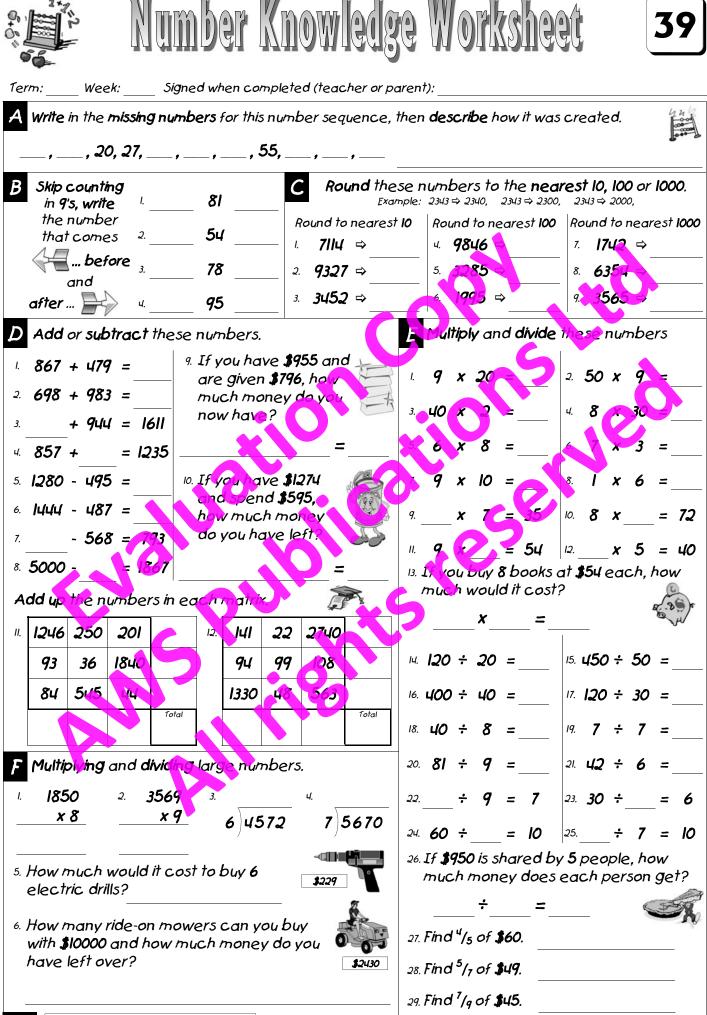
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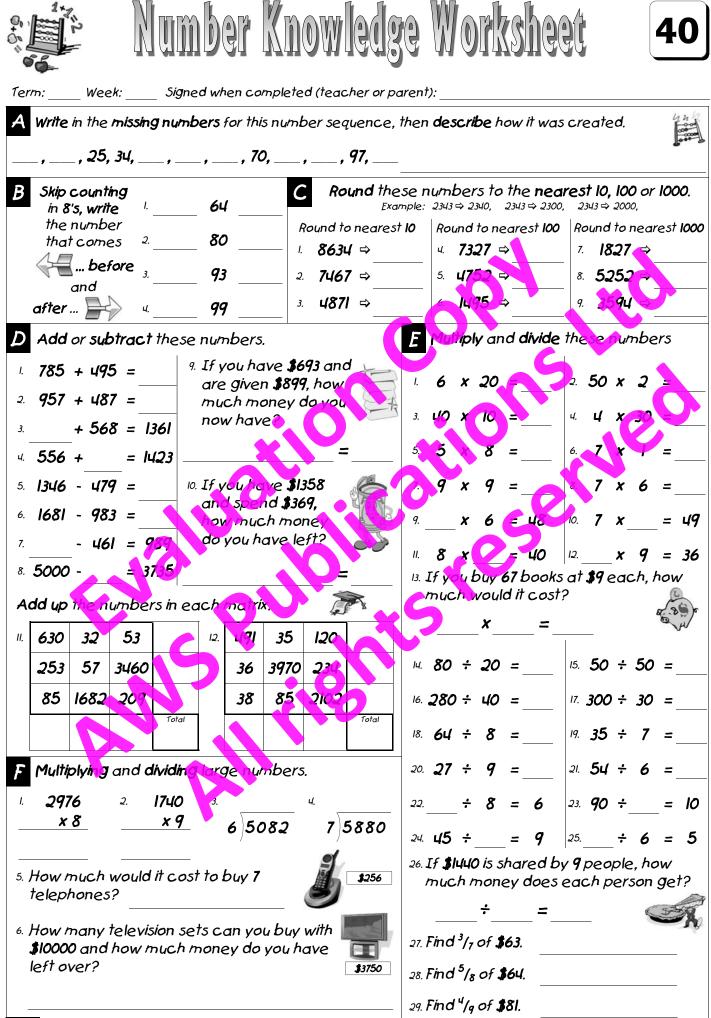






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