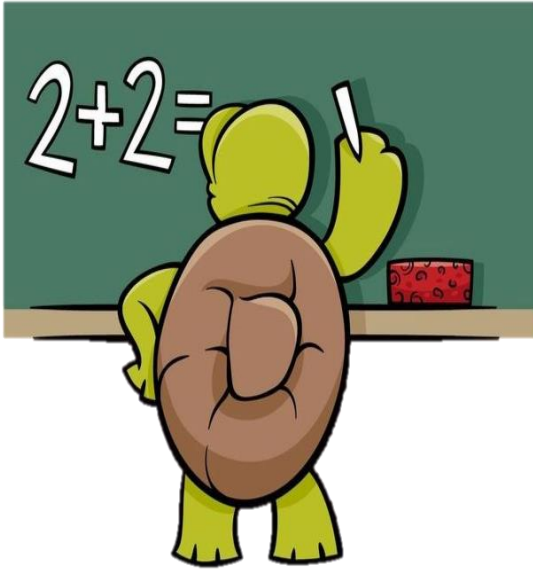


ADDITION and SUBTRACTION

KNOWLEDGE ORGANISER

Overview

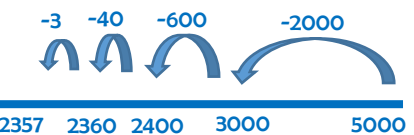


Addition and Subtraction we learn:

- Add two 4-digit numbers (one and more exchanges)
- Add/subtract whole numbers with more than 4 digits
- Subtract two 4-digit numbers (one and more exchanges)
- Round to estimate & approximate
- Inverse operations
- Multi-step addition and subtraction problems.

Addition and Subtraction is useful learning because it is used in many areas of everyday life – e.g. shopping, cooking, or playing games. It also forms the basis for lots of other maths ideas.

Subtraction Methods – Two 5-digit Numbers

No Exchange	1 Exchange	2 Exchanges +
$99882 - 27582 = 72300$ $\begin{array}{r} 99882 \\ - 27582 \\ \hline 72300 \end{array}$	$8673 - 1448 = 7225$ $\begin{array}{r} 583\cancel{1}4 \\ - 27218 \\ \hline 31106 \end{array}$	$61069 - 36827 = 24242$ $\begin{array}{r} 5\cancel{1}069 \\ - 36827 \\ \hline 24242 \end{array}$
<p>Starting with the ones, simply subtract each column in turn.</p>	<p>Starting with the ones, subtract each column in turn.</p>	<p>Starting with the ones, subtract each column in turn.</p>
<p>Efficient Subtraction</p> $5000 - 2643 = 2357$ 	<p>When subtracting 3 ones – 8 ones, exchange 1 hundred to make 13 tens – 8 tens. Don't forget to take this from the hundreds in the next calculation.</p>	<p>Exchange tens, hundreds, thousands as needed.</p> <p>Don't forget to subtract the exchanged number from the next calculation.</p>

Addition Methods – Two 5-digit Numbers

No Exchange	1 Exchange	2 Exchanges +
$44514 + 13413 = 57927$ $\begin{array}{r} 44514 \\ + 13413 \\ \hline 57927 \end{array}$	$21351 + 21700 = 43051$ $\begin{array}{r} 21351 \\ + 21700 \\ \hline 43051 \\ 1 \end{array}$	$95392 + 92730 = 188122$ $\begin{array}{r} 95392 \\ + 92730 \\ \hline 188122 \\ 1 \quad 1 \end{array}$
<p>Starting with the ones, simply add each column in turn.</p> <p>Be sure to check over your answer for careless calculation errors.</p>	<p>Starting with the ones, add each column in turn. When calculating 3 plus 7 hundreds, the answer is 10 hundreds (so one thousand).</p> <p>Place 0 hundreds as the answer and 1 thousand under thousands answer. Include this in the next calculation.</p>	<p>Starting with the ones, add each column in turn.</p> <p>Exchange tens, hundreds, or thousands as required.</p> <p>Don't forget to add the exchanged number into the next calculation.</p>

Multistep Problems/ Inverse Operations

Multistep Problems	Inverse Operations													
<table border="1"> <tr><td colspan="3">£30</td></tr> <tr><td>£14.85</td><td>£7.89</td><td>?</td></tr> <tr><td colspan="2">£22.74</td><td>£7.26</td></tr> </table> <p>I have £30.00</p> <p>I buy two toys, costing £14.85 and £ 7.89</p> <p>How much change do I receive?</p> $£14.85 + £7.89 = £22.74$ $£30.00 - £22.74 = £7.26$	£30			£14.85	£7.89	?	£22.74		£7.26	<p>Use the inverse to check.</p> <table border="1"> <tr><td colspan="2">54,959</td></tr> <tr><td>36,161</td><td>18,798</td></tr> </table> <p>For example, to check $54,959 - 36,161 = 18,798$</p> <p>Use $36,161 + 18,798 = 54,959$</p> <p>Inverse can be used to find the missing number.</p> <p>e.g. I have a number, I subtract 48, and then double the resulting number to get 28. What is the original number? Start with 28. Divide by 2 = 14. Add 48. The original number was 62.</p>	54,959		36,161	18,798
£30														
£14.85	£7.89	?												
£22.74		£7.26												
54,959														
36,161	18,798													

Key Vocabulary

Total	Altogether	Difference	Exchange	Column Method	Estimate	Inverse	Number Facts	Place Value	Complex
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