

Strategies for Adding Whole Numbers

There are many ways to add whole numbers. Here are some ways to add 9727 and 4895.

$$\begin{array}{r} 9727 \\ + 4895 \\ \hline \end{array}$$

1. Add in parts.

$9000 + 4000 = 13\ 000$	}	14 500	}	14 622
$700 + 800 = 1\ 500$				
$20 + 90 = 110$				
$7 + 5 = 12$				

2. 4895 is 5 less than 4900.
If you add 5 to 4895 and subtract 5 from 9727, the answer will not change.

$9727 - 5 = 9722$
 $4895 + 5 = 4900$

To add $9722 + 4900$:

$9000 + 4000 = 13\ 000$	}	14 600 + 22 = 14 622
$700 + 900 = 1\ 600$		

3. Add the ones. Trade 10 ones for 1 ten. Add the tens. Trade 10 tens for 1 hundred. Add the hundreds. Trade 10 hundreds for 1 thousand. Add the thousands.

$\begin{array}{r} 1 \\ 9727 \\ + 4895 \\ \hline 2 \end{array}$	$\begin{array}{r} 11 \\ 9727 \\ + 4895 \\ \hline 22 \end{array}$	$\begin{array}{r} 111 \\ 9727 \\ + 4895 \\ \hline 622 \end{array}$	$\begin{array}{r} 1111 \\ 9727 \\ + 4895 \\ \hline 14622 \end{array}$
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Strategies for Dividing Whole Numbers

There are many ways to divide whole numbers. Here are some ways to divide 4863 by 15.

$$15 \overline{)4863}$$

1.

Rename 4863 as a sum of numbers easily divided by 15.

$$4500 + 300 + 63$$

$$4500 \div 15 = 300$$

$$300 \div 15 = 20$$

$$63 \div 15 = 4 \text{ R. } 3$$

$$320 + 4 = 324$$

$$4863 \div 15 = 324 \text{ R}3$$

2.

Multiply 15 by numbers you know will work, to get as close to 4863 as you can.

$$\begin{array}{r}
 4 \\
 20 \\
 300 \\
 15 \overline{)4863} \\
 \underline{4500} \\
 363 \\
 \underline{300} \\
 63 \\
 \underline{60} \\
 3
 \end{array}$$

$$4863 \div 15 = 324 \text{ R}3$$

3.

Divide the hundreds. → Bring down the tens. → Divide the tens. Multiply and subtract. → Bring down the ones. → Divide the ones. Multiply and subtract. → Write the remainder.

Th	H	T	O
	3		

$$\begin{array}{r}
 3 \\
 15 \overline{)4863} \\
 \underline{45} \\
 3
 \end{array}$$

Th	H	T	O
	3		

$$\begin{array}{r}
 3 \\
 15 \overline{)4863} \\
 \underline{45} \downarrow \\
 36
 \end{array}$$

Th	H	T	O
	3	2	

$$\begin{array}{r}
 32 \\
 15 \overline{)4863} \\
 \underline{45} \\
 36 \\
 \underline{30} \\
 6
 \end{array}$$

Th	H	T	O
	3	2	

$$\begin{array}{r}
 32 \\
 15 \overline{)4863} \\
 \underline{45} \downarrow \\
 36 \\
 \underline{30} \downarrow \\
 63
 \end{array}$$

Th	H	T	O
	3	2	4

$$\begin{array}{r}
 324 \\
 15 \overline{)4863} \\
 \underline{45} \\
 36 \\
 \underline{30} \\
 63 \\
 \underline{60} \\
 3
 \end{array}$$

Th	H	T	O
	3	2	4

$$\begin{array}{r}
 324 \text{ R}3 \\
 15 \overline{)4863} \\
 \underline{45} \\
 36 \\
 \underline{30} \\
 63 \\
 \underline{60} \\
 3
 \end{array}$$

Strategies for Subtracting Whole Numbers

There are many ways to subtract whole numbers. Here are some ways to subtract 1889 from 3497

$$\begin{array}{r} 3497 \\ - 1889 \\ \hline \end{array}$$

1. If you add the same amount to both numbers, the difference will remain the same.

$$3497 + 3 = 3500$$

$$1889 + 3 = 1892$$

Now subtract $3500 - 1892$.

$$3500 - 1800 = 1700$$

$$1700 - 92 = 1608$$

2. Round 1889 to 2000.

$$3497 - 2000 = 1497$$

Difference between rounded number and actual number:

$$2000 - 1889 = 111$$

$$1497 + 111 = 1608$$

3. Add in steps to get from 1889 to 3497.

$111 + 1000 + 497 = 1608$

You added 1608 in all, so $3497 - 1889 = 1608$.

4. More ones are needed. → Trade 1 ten for 10 ones. → Subtract the ones.

$$\begin{array}{r} 3497 \\ - 1889 \\ \hline \end{array}$$

More hundreds are needed. Trade 1 thousand for 10 hundreds. Subtract the hundreds.

$$\begin{array}{r} 24817 \\ 3497 \\ - 1889 \\ \hline 608 \end{array}$$

Subtract the thousands.

$$\begin{array}{r} 214817 \\ 3497 \\ - 1889 \\ \hline 1608 \end{array}$$

Strategies for Multiplying Whole Numbers

There are many ways to multiply whole numbers.
Here are some ways to multiply 768 by 12.

$$\begin{array}{r} 768 \\ \times 12 \\ \hline \end{array}$$

1. Multiply the parts of 768 by 10. Multiply the parts of 768 by 2.

$\begin{array}{r} 10 \times 700 = 7000 \\ 10 \times 60 = 600 \\ 10 \times 8 = \underline{80} \\ 7680 \end{array}$	$\begin{array}{r} 2 \times 700 = 1400 \\ 2 \times 60 = 120 \\ 2 \times 8 = \underline{16} \\ 1536 \end{array}$
$7680 + 1536 = 8000 + 1100 + 110 + 6 = 9216$	

2. Multiply the parts of 768 by 12.

$$\begin{array}{r} 12 \times 700 = 8400 \\ 12 \times 60 = 720 \\ 12 \times 8 = \underline{96} \\ 9216 \end{array}$$

3. Multiply 768 by 10. Add.

<p>Multiply 768 by 2.</p> $\begin{array}{r} 11 \\ 768 \\ \times 12 \\ \hline 1536 \end{array}$	<p>Multiply 768 by 10.</p> $\begin{array}{r} 11 \\ 768 \\ \times 12 \\ \hline 1536 \\ \hline 7680 \end{array}$	<p>Add.</p> $\begin{array}{r} 768 \\ \times 12 \\ \hline 1536 \\ \hline 7680 \\ \hline 9216 \end{array}$
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