

e: 730

	H	T	U
1	5	3	4
+	1	9	7
7	3	1	

This is the written method for addition when regrouping.

First, estimate the answer to the nearest ten:
 $530 + 200 = 730$

Add the units: $4 + 7 = 11$ units.
 Think of this as 1 ten and 1 unit.
 Write the 1 in the units column and put the 1 in the tens column.

Add the tens: $3 + 9 + 1 = 13$ tens.
 Write 3 in the tens column and 1 in the hundreds column.

Add the hundreds: $5 + 1 + 1 = 7$ hundreds.

Is our answer reasonable? Yes, because it's close to our estimate.

1 Practise estimating answers by rounding to the nearest ten. The first one has been done for you.

	Question	Estimate
a	$682 + 179$	$680 + 180 = 860$
c	$359 + 222$	
e	$587 + 398$	
g	$189 + 108$	

	Question	Estimate
b	$271 + 119$	
d	$378 + 119$	
f	$412 + 98$	
h	$911 + 207$	

2 Add these 3 digit numbers using the written method. First, estimate to the nearest ten.

e:

	H	T	U
a	3	5	4
+	2	1	7

e:

	H	T	U
b	6	2	8
+	2	1	3

e:

	H	T	U
c	3	6	4
+	2	2	8

2 Add these 3 digit numbers using the written method:

e:			
	H	T	U
d	2	6	3

+	1	3	9

e:			
	H	T	U
e	3	4	4

+	4	5	9

e:				
	Th	H	T	U
f		2	5	2

+		2	4	9

e:				
	Th	H	T	U
g		2	6	2

+		5	4	9

e:				
	Th	H	T	U
h		6	2	9

+		2	8	9

e:				
	Th	H	T	U
i		3	4	9

+		3	8	7

3 Solve these word problems using the written method:

- a At a muffin shop, 456 banana choc chip muffins were sold on Saturday and 458 caramel chunk muffins were sold on Sunday. How many muffins were sold that weekend?

	H	T	U

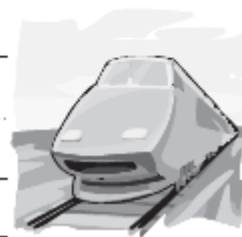
+	-----		



- b A train left the station with 389 people on board and then another 678 people got on over the next three stops. How many passengers were on the train altogether?

	Th	H	T	U

+	-----			



1 Add these 4 digit numbers:

	Th	H	T	U
a	3	3	5	3
+	1	0	2	1
<hr/>				
<hr/>				

	Th	H	T	U
b	2	5	4	6
+	5	4	3	1
<hr/>				
<hr/>				

	Th	H	T	U
c	4	5	2	4
+	2	1	6	4
<hr/>				
<hr/>				

	Th	H	T	U
d	3	6	3	1
+	1	3	5	7
<hr/>				
<hr/>				

	Th	H	T	U
e	1	2	5	2
+	5	3	3	3
<hr/>				
<hr/>				

	Th	H	T	U
f	2	4	3	2
+	5	3	4	6
<hr/>				
<hr/>				

2 Add these 4 digit numbers by regrouping:

	Th	H	T	U
a	6	6	3	8
+	1	2	3	6
<hr/>				
<hr/>				

	Th	H	T	U
b	4	2	4	5
+	2	5	1	7
<hr/>				
<hr/>				

	Th	H	T	U
c	3	4	2	9
+	1	1	3	9
<hr/>				
<hr/>				

3 Add these 4 digit numbers by regrouping:

	Th	H	T	U
a	2	4	6	6
+	2	1	8	7
<hr/>				
<hr/>				

	Th	H	T	U
b	3	1	8	7
+	3	0	5	9
<hr/>				
<hr/>				

	Th	H	T	U
c	3	2	9	6
+	2	1	5	8
<hr/>				
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- 1 Subtract these 3 digit numbers using the written method. Start by writing your estimate. Estimate to the nearest 10.

e:

	H	T	U
a	6	5	2
-	3	2	7

e:

	H	T	U
b	7	6	1
-	2	2	9

e:

	H	T	U
c	5	9	2
-	4	4	8

You can use a piece of scrap paper to estimate your answer to the nearest 10.



CHECK

e:

	H	T	U
d	5	8	2
-	3	4	6

e:

	H	T	U
e	6	5	1
-	4	3	8

e:

	H	T	U
f	9	6	2
-	6	4	9

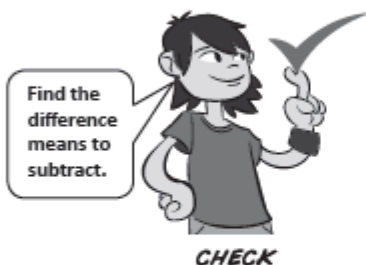
e:

	H	T	U
g	8	8	2
-	6	6	6

e:

	H	T	U
h	7	4	3
-	3	3	9

- 2 This sign shows the distances of towns along a highway from where the sign is. Find the difference between these places.



Showtown	971 km
Roper	893 km
Ringer	692 km
Eagle Bay	595 km
Normanville	567 km

- a What is the distance between Ringer and Normanville?

	H	T	U
—			
—			
—			
			km

- b What is the distance between Roper and Eagle Bay?

	H	T	U
—			
—			
—			
			km

- c What is the distance between Showtown and Ringer?

	H	T	U
—			
—			
—			
			km

- d What is the distance between Roper and Normanville?

	H	T	U
—			
—			
—			
			km

1 Write the numbers which are above each problem in the correct place:

a

4	3	9
+		
	3	6
	6	2
		7

	7	9

b

8	3	3	2
-			
	6	5	
	4		

	4		3

c

6	5	1
+		
	2	3
	3	

	8	4

d

3	6	7
-		
	5	
	2	4

	2	4

2 Solve these. The same symbol means the same number.

a

	◆	3	◆
+	◆	◆	4

	1	0	8

	◆	=	

b

	6	2	9
+	♥	1	♥

	1	1	4

	♥	=	

c

	★	8	★
-	3	★	2

	1	★	2

	★	=	

d

	☺	4	1
-	2	3	☺

	3	0	6

	☺	=	

	H	T	U
		15	4
x			3
	1	6	2

Start with the units. $4 \times 3 = 12$ units.

Rename this as 1 ten and 2 units. Put the 2 in the units column and regroup the 1 to the tens column.

3×5 plus the regrouped 1 is 16 tens.

Rename this as 1 hundred and 6 tens.

1 Practise these problems:

a

	H	T	U
		4	2
x			9

b

	H	T	U
		3	8
x			7

c

	H	T	U
		2	5
x			4

d

	H	T	U
		2	6
x			4

e

	H	T	U
		5	5
x			8

f

	H	T	U
		6	2
x			7

2 Use contracted multiplication to solve these word problems:

a On a farm, 6 lambs were born every day over 25 days. How many lambs were born in total?

	H	T	U
x			

b For my school fete day, I baked 9 trays of cupcakes. If there are 14 cupcakes on each tray, how many did I bake in total?

	H	T	U
x			

Written methods – extended multiplication

	H	T	U
		3	4
x			3
		1	2
		9	0
	1	0	2

← (3 × 4)

← (3 × 30)

← (3 × 4)

← (3 × 30)

← (3 × 4)

← (3 × 30)

In extended multiplication, we multiply the units and tens separately, then add the answers together.

1 Practise these problems:

a

	H	T	U
		2	3
x			4

← (4 × 3)

← (4 × 20)

b

	H	T	U
		3	6
x			5

← (5 × 6)

← (5 × 30)

c

	H	T	U
		7	4
x			6

← (___ × ___)

← (___ × ___)

d

	H	T	U
		5	2
x			7

← (___ × ___)

← (___ × ___)

2 Use extended multiplication to solve this word problem:

In a pet store, there are 7 tanks of tropical fish with 14 fish per tank.
How many fish are there altogether?

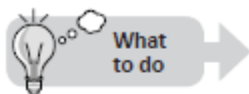
	H	T	U
x			

← (___ × ___)

← (___ × ___)

Symbols

solve



Can you work out the value of each symbol?

The values are 2, 3, 4, 6, 8, 9 and 12. Remember, the same symbol means that it's the same number.

$$\diamond \times \diamond = \star \quad \square \times \square = \square$$

$$\diamond \times \diamond \times \diamond = \star \quad \square \times \square \times \square = \square$$

$$\diamond \times \star = \star \quad \square \times \square = \square$$

$$\nabla \times \star = \bullet \quad \square \times \square = \square$$

$$\nabla \times \nabla = \star \quad \square \times \square = \square$$

$$\nabla \times \diamond = \blacksquare \quad \square \times \square = \square$$

$$\blacksquare \times \diamond = \bullet \quad \square \times \square = \square$$

$\diamond = \square$	$\star = \square$	$\star = \square$	$\nabla = \square$
$\star = \square$	$\blacksquare = \square$	$\bullet = \square$	

Another way to represent division is with the division symbol.

	T	U
		6
		6
6)	3 6

This is the same as $36 \div 6 = 6$

If the answer is a single digit, it should go in the units column.

1 Solve these division problems using the division symbol:

a $5 \overline{) 35}$

b $4 \overline{) 28}$

c $9 \overline{) 18}$

d $6 \overline{) 54}$

e $2 \overline{) 14}$

f $4 \overline{) 16}$

g $5 \overline{) 25}$

h $7 \overline{) 49}$

i $8 \overline{) 48}$

2 Use the division symbol to solve each problem:

a 42 cupcakes were iced by 7 kids. If they each iced the same amount, how many did they ice each?

$\square \overline{) \square \square}$

b How many pots were used if 6 seeds were planted in each pot from a packet of 54?

$\square \overline{) \square \square}$

c I run the same distance each day. Over 9 days the total distance is 72 km. How far did I run each day?

$\square \overline{) \square \square}$

This is the way we write remainders when using the division symbol.

$$\begin{array}{r}
 2r3 \\
 6 \overline{) 15} \\
 \hline
 12 \\
 \hline
 3
 \end{array}$$

This is the same as $15 \div 6 = 2$ remainder 3.

Check your work with the closest multiplication fact:

$$6 \times 2 = 12$$

$$\text{Then add on the remainder: } 12 + 3 = 15$$

1 Solve these division problems and then check them.

a
$$\begin{array}{r}
 r \\
 8 \overline{) 27} \\
 \hline
 16 \\
 \hline
 11
 \end{array}$$

Check with the multiplication fact and add the remainder:

$$\begin{array}{c}
 \times + = \\
 \text{multiplication fact} \quad \text{remainder}
 \end{array}$$

b
$$\begin{array}{r}
 r \\
 9 \overline{) 38} \\
 \hline
 27 \\
 \hline
 11
 \end{array}$$

Check with the multiplication fact and add the remainder:

$$\begin{array}{c}
 \times + = \\
 \text{multiplication fact} \quad \text{remainder}
 \end{array}$$

c
$$\begin{array}{r}
 r \\
 6 \overline{) 45} \\
 \hline
 30 \\
 \hline
 15
 \end{array}$$

Check with the multiplication fact and add the remainder:

$$\begin{array}{c}
 \times + = \\
 \text{multiplication fact} \quad \text{remainder}
 \end{array}$$

d
$$\begin{array}{r}
 r \\
 5 \overline{) 48} \\
 \hline
 40 \\
 \hline
 8
 \end{array}$$

Check with the multiplication fact and add the remainder:

$$\begin{array}{c}
 \times + = \\
 \text{multiplication fact} \quad \text{remainder}
 \end{array}$$

2 What is the question if I am checking with this multiplication fact?

$$\begin{array}{r}
 r \\
 \overline{) } \\
 \hline
 \\
 \hline

 \end{array}$$

$$5 \times 6 + 3 = 33$$

In short division with 3-digit numbers we split the number:

468 is $400 + 60 + 8$

400 divided by 2 is 200, so we put a 2 in the hundreds place.

60 divided by 2 is 30, so we put a 3 in the tens place.

8 is divided by 2 is 4, so we put a 4 in the units place.

H	T	U
2	3	4
2)	4
		6
		8

1 Practise splitting these:

a 368 is _____ + _____ + _____

b 445 is _____ + _____ + _____

c 567 is _____ + _____ + _____

d 235 is _____ + _____ + _____

2 Now put these split numbers back together:

a $500 + 70 + 8$ is _____

b $700 + 90 + 4$ is _____

c $200 + 40 + 6$ is _____

d $800 + 50 + 5$ is _____

3 Solve these division problems with 3-digit numbers:

a
$$\begin{array}{r} \square \square \square \\ 4 \overline{) 8 \ 4 \ 4} \end{array}$$

b
$$\begin{array}{r} \square \square \square \\ 3 \overline{) 6 \ 9 \ 3} \end{array}$$

c
$$\begin{array}{r} \square \square \square \\ 2 \overline{) 8 \ 4 \ 2} \end{array}$$

d
$$\begin{array}{r} \square \square \square \\ 2 \overline{) 4 \ 8 \ 8} \end{array}$$

4 Here are two division problems with missing numbers in the questions. Find out the missing numbers by using the numbers that are part of the answer as clues.

a
$$\begin{array}{r} 1 \ 2 \ \square \\ \square \overline{) 4 \ \square \ 4} \end{array}$$

b
$$\begin{array}{r} 3 \ \square \ \square \\ 3 \overline{) \square \ 3 \ 6} \end{array}$$