

Sixth Grade Summer Review Sheet

Adding Whole Numbers

Step 1: Line up the digits by place value.

Step 2: Add. Don't forget to regroup, if necessary.

Example 1:

	Thousands	Hundreds	Tens	Ones
	1	1	3	6
+		8	5	3
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	1	9	8	9

Line up the digits at the ones place.

Add the ones. There are 9 ones.

Add the tens. There are 8 tens.

Add the hundreds. There are 9 hundreds.

Add the thousands. There is 1 thousand.

Example 2:

	Hundreds	Tens	Ones
	1	5	6
		6	4
+		3	9
		2	
<hr/>			
	9	5	6

Line up the digits at the ones place.

Add the ones. There are 6 ones.

Add the tens. There are 15 tens.
Since 15 tens is 1 hundred 5 tens,
write the 5 in the tens place.
Write 1 as a new addend in the
hundreds place.

Add the hundreds. There are 9 hundreds.

Subtracting Whole Numbers

Step 1: Line up the digits by place value.

Step 2: Subtract. Don't forget to borrow, if necessary.

Example 1:

Thousands	Hundreds	Tens	Ones
2	9	8	4
-	6	1	2
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2	3	7	2

Line up the digits at the ones place.
Subtract the ones. There are 2 ones.

Subtract the tens. There are 7 tens.

Subtract the hundreds. There are 3 hundreds.

Subtract the thousands. There are 2 thousands.

Example 2:

Hundreds	Tens	Ones
	0	15
1	1	5
-	3	8
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	7	7

Try to subtract the ones. Oops, you need more ones.
Use the ten. Since 1 ten = 10 ones, change the ten to 0 tens and the 5 ones to 15 ones.
NOW subtract the ones. There are 7 ones.

0	10	15
1	1	5
-	3	8
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	7	7

Try to subtract the tens. You need more tens.
Use the hundred. Since 1 hundred = 10 tens, change the 1 hundred to 0 hundreds and 0 tens to 10 tens.
NOW subtract the tens. There are 7 tens.

Subtract the hundreds. There are no hundreds.

Multiplying Whole Numbers

Multiplying by a 1-Digit Number

If you know how to multiply 1-digit numbers such as 7×5 , you can also multiply larger numbers such as 7×582 . That's because multiplying multi-digit numbers is done one digit at a time. Each product is called a **partial product**. First, multiply the value of each digit from one factor by the value of each digit from the other factor. Then, add up the partial products.

Method 1: Multiplying by listing all the partial products

Example:

Find 582×7 .

$$\begin{array}{r} 582 \\ \times 7 \\ \hline 14 \\ 560 \\ +3500 \\ \hline 4074 \end{array}$$

14 ← Multiply the ones. $7 \times 2 \text{ ones} = 14 \text{ ones}$
560 ← Multiply the tens. $7 \times 8 \text{ tens} = 56 \text{ tens} = 560$
+3500 ← Multiply the hundreds $7 \times 5 \text{ hundreds} = 35 \text{ hundreds} = 3500$
4074 ← Add the partial products

Method 2: You can also multiply without listing the partial products.

Example:

Find 582×7 .

$$\begin{array}{r} 51 \\ 582 \\ \times 7 \\ \hline 4074 \end{array}$$

Multiply the ones. Since 14 ones is 1 ten and 4 ones, write 4 in the ones place. Write 1 above the tens so you don't forget it.

Multiply the tens. Since 56 tens is 5 hundreds and 6 tens, add the 6 tens to the 1 ten you already have. Write 7 in the tens place. Write 5 above the hundreds so you don't forget it.

Multiply the hundreds. Since 35 hundreds is 3 thousands and 5 hundreds, add the 5 hundreds to the 5 hundreds you already have. Write 0 in the hundreds place. Write 4 in the thousands place.

Multiplying by a 2-Digit Number

Example:

Multiply 24×674 .

Method 1: Multiplying by listing all the partial products

	Hundreds	Tens	Ones	
	6	7	4	
×	2	4		
	16			
	280			
	2400			
		80		
	1400			
	12000			
	16,176			

Multiply by the ones:
 $4 \times 4 = 16$
 $4 \times 70 = 280$
 $4 \times 600 = 2400$

Multiply by the tens:
 $20 \times 4 = 80$
 $20 \times 70 = 1400$
 $20 \times 600 = 12,000$

Add the partial products.

Method 2: You can also multiply without listing the partial products.

	Hundreds	Tens	Ones	
	2	1	4	
×	24			
	2696			
	1	3	80	
	16,176			

Multiply by the ones: $4 \times 674 = ?$
 $4 \times 4 = 16$ → 6 ones with 1 ten to regroup
 $4 \times 70 = 280$ → 8 tens + 1 ten with 2 hundreds to regroup
 $4 \times 600 = 2400$ → 24 hundreds + 2 hundreds

Multiply by the tens: $20 \times 674 = ?$
 $20 \times 4 = 80$ → 8 tens and 0 ones
 $20 \times 70 = 1400$ → 4 hundreds with 1 thousand to regroup
 $20 \times 600 = 12,000$ → 12 thousands + 1 thousand

Add the partial products.

Dividing Whole Numbers

Remember, there are three symbols for division: \div , $\overline{)}$, and the fraction bar.

Example:

272 divided by 8 can be written as $272 \div 8$, $8 \overline{)272}$, or $\frac{272}{8}$.

The basic steps in division are:

Step 1: Multiply to estimate. Look at the dividend (the number being divided; in the example above, 272 is the dividend). Find the first place that the divisor (the number doing the dividing; in the example above, 8 is the divisor). Use mental multiplication to get close to the dividend without going over.

Step 2: Subtract and compare. Subtract the product you found in **Step 1** from the dividend to see what remains to be divided.

Step 3: Repeat Steps 1 and 2 until there's not enough or nothing left to divide.

Example:

1. Find $272 \div 8$.

$$\begin{array}{r} 34 \\ 8 \overline{)272} \\ \underline{-240} \\ 32 \\ \underline{-32} \\ 0 \end{array}$$

Remember: $272 = 2$ hundreds(200) + 7 tens (70) + 2 ones(2).

Start with the hundreds. $200 \div 8 = ?$. *Multiply to estimate.*
 $8 \times 100 = 800$. That's too much. So, don't write anything in the hundreds place.

Divide the tens. $270 \div 8 = ?$. *Multiply to estimate.*

$$8 \times 3 \text{ tens} = 24 \text{ tens} = 240$$

$$8 \times ? \text{ tens} = 270$$

$$8 \times 4 \text{ tens} = 32 \text{ tens} = 320$$

So, the quotient is between 30(3 tens) and 40(4 tens). Write a 3 in the tens place and 240 under the dividend. *Subtract and compare.*
 $272 - 240 = 32$. Since $32 > 8$, we can keep dividing.

Divide the ones. *Multiply to estimate.* In this case, there is no need to estimate. We know that $8 \times 4 = 32$. Write a 4 in the ones place and place a 32 under the dividend.

Subtract and compare. $32 - 32 = 0$. We can't divide any more, so we are done.

2. $5,504 \div 32 =$

$$\begin{array}{r} 172 \\ 32 \overline{) 5504} \\ - 3200 \\ \hline 2304 \\ - 2240 \\ \hline 64 \\ - 64 \\ \hline 0 \end{array}$$

OR

$$\begin{array}{r} 172 \\ 32 \overline{) 5504} \\ - 32 \downarrow \\ \hline 230 \downarrow \\ - 224 \downarrow \\ \hline 64 \\ - 64 \\ \hline 0 \end{array}$$