

Whole Number Handout

Note: Regrouping can also be called carrying or renaming

Remember: use estimation or a calculator to check your answers

Whole Number Addition

Example: Let's say that you have 5 pieces of paper in your notebook. Your friend gives you 2 more pieces of paper. How many pieces of paper do you have now?

$$\begin{array}{r} 5 \\ +2 \\ \hline 7 \end{array}$$

I. Practice

a) $\begin{array}{r} 2 \\ +1 \\ \hline \end{array}$

b) $\begin{array}{r} 3 \\ +2 \\ \hline \end{array}$

c) $\begin{array}{r} 4 \\ +3 \\ \hline \end{array}$

d) $\begin{array}{r} 6 \\ +2 \\ \hline \end{array}$

e) $\begin{array}{r} 3 \\ +1 \\ \hline \end{array}$

f) $\begin{array}{r} 4 \\ +2 \\ \hline \end{array}$

g) $\begin{array}{r} 7 \\ +2 \\ \hline \end{array}$

h) $\begin{array}{r} 4 \\ +4 \\ \hline \end{array}$

i) $\begin{array}{r} 5 \\ +4 \\ \hline \end{array}$

j) $\begin{array}{r} 8 \\ +1 \\ \hline \end{array}$

k) $\begin{array}{r} 6 \\ +3 \\ \hline \end{array}$

l) $\begin{array}{r} 6 \\ +1 \\ \hline \end{array}$

m) $\begin{array}{r} 7 \\ +1 \\ \hline \end{array}$

n) $\begin{array}{r} 3 \\ +3 \\ \hline \end{array}$

o) $\begin{array}{r} 3 \\ +2 \\ \hline \end{array}$

p) $\begin{array}{r} 5 \\ +1 \\ \hline \end{array}$

q) $\begin{array}{r} 5 \\ +3 \\ \hline \end{array}$

r) $\begin{array}{r} 4 \\ +2 \\ \hline \end{array}$

Example: Suppose you have 7 sheets of paper in your notebook. Your friend gives you 4 more pieces of paper. How many pieces of paper do you have now?

$$\begin{array}{r} 7 \\ +4 \\ \hline 11 \end{array}$$

II. Practice

a) $\begin{array}{r} 9 \\ +9 \\ \hline \end{array}$ b) $\begin{array}{r} 7 \\ +6 \\ \hline \end{array}$ c) $\begin{array}{r} 8 \\ +3 \\ \hline \end{array}$ d) $\begin{array}{r} 6 \\ +5 \\ \hline \end{array}$ e) $\begin{array}{r} 5 \\ +5 \\ \hline \end{array}$ f) $\begin{array}{r} 9 \\ +5 \\ \hline \end{array}$

g) $\begin{array}{r} 7 \\ +3 \\ \hline \end{array}$ h) $\begin{array}{r} 8 \\ +4 \\ \hline \end{array}$ i) $\begin{array}{r} 7 \\ +4 \\ \hline \end{array}$ j) $\begin{array}{r} 8 \\ +2 \\ \hline \end{array}$ k) $\begin{array}{r} 6 \\ +6 \\ \hline \end{array}$ l) $\begin{array}{r} 6 \\ +4 \\ \hline \end{array}$

m) $\begin{array}{r} 7 \\ +7 \\ \hline \end{array}$ n) $\begin{array}{r} 9 \\ +8 \\ \hline \end{array}$ o) $\begin{array}{r} 8 \\ +5 \\ \hline \end{array}$ p) $\begin{array}{r} 7 \\ +5 \\ \hline \end{array}$ q) $\begin{array}{r} 9 \\ +3 \\ \hline \end{array}$ r) $\begin{array}{r} 9 \\ +2 \\ \hline \end{array}$

Example: Let's say that you have 17 pieces of paper in your notebook, Your friend gives you 4 more pieces of paper. How many pieces of paper do you have now?

$$\begin{array}{r} 1 \\ 17 \\ +4 \\ \hline 21 \end{array}$$

Double-digit addition uses the concept of *CARRYING*. Carrying is what added numbers do when they pass ten. The carried number is then added to find the answer.

III. Practice

a) $\begin{array}{r} 22 \\ +9 \\ \hline \end{array}$

b) $\begin{array}{r} 13 \\ +8 \\ \hline \end{array}$

c) $\begin{array}{r} 23 \\ +7 \\ \hline \end{array}$

d) $\begin{array}{r} 37 \\ +6 \\ \hline \end{array}$

e) $\begin{array}{r} 19 \\ +3 \\ \hline \end{array}$

f) $\begin{array}{r} 11 \\ +9 \\ \hline \end{array}$

g) $\begin{array}{r} 28 \\ +3 \\ \hline \end{array}$

h) $\begin{array}{r} 44 \\ +7 \\ \hline \end{array}$

i) $\begin{array}{r} 69 \\ +2 \\ \hline \end{array}$

j) $\begin{array}{r} 73 \\ +8 \\ \hline \end{array}$

k) $\begin{array}{r} 45 \\ +6 \\ \hline \end{array}$

l) $\begin{array}{r} 57 \\ +9 \\ \hline \end{array}$

m) $\begin{array}{r} 17 \\ +4 \\ \hline \end{array}$

n) $\begin{array}{r} 38 \\ +2 \\ \hline \end{array}$

o) $\begin{array}{r} 77 \\ +7 \\ \hline \end{array}$

p) $\begin{array}{r} 94 \\ +6 \\ \hline \end{array}$

q) $\begin{array}{r} 86 \\ +4 \\ \hline \end{array}$

r) $\begin{array}{r} 59 \\ +8 \\ \hline \end{array}$

Whole Number Subtraction

Example: Suppose you have 6 pieces of paper. You give 2 sheets to your friend. How many sheets of paper do you end up with?

$$\begin{array}{r} 6 \\ -4 \\ \hline 2 \end{array}$$

IV. Practice

a) $\begin{array}{r} 8 \\ -5 \\ \hline \end{array}$

b) $\begin{array}{r} 5 \\ -2 \\ \hline \end{array}$

c) $\begin{array}{r} 9 \\ -7 \\ \hline \end{array}$

d) $\begin{array}{r} 7 \\ -6 \\ \hline \end{array}$

e) $\begin{array}{r} 9 \\ -3 \\ \hline \end{array}$

f) $\begin{array}{r} 3 \\ -1 \\ \hline \end{array}$

g) $\begin{array}{r} 6 \\ -3 \\ \hline \end{array}$

h) $\begin{array}{r} 8 \\ -7 \\ \hline \end{array}$

i) $\begin{array}{r} 9 \\ -2 \\ \hline \end{array}$

j) $\begin{array}{r} 4 \\ -3 \\ \hline \end{array}$

k) $\begin{array}{r} 7 \\ -6 \\ \hline \end{array}$

l) $\begin{array}{r} 8 \\ -8 \\ \hline \end{array}$

m) $\begin{array}{r} 7 \\ -4 \\ \hline \end{array}$

n) $\begin{array}{r} 8 \\ -2 \\ \hline \end{array}$

o) $\begin{array}{r} 9 \\ -6 \\ \hline \end{array}$

p) $\begin{array}{r} 5 \\ -1 \\ \hline \end{array}$

q) $\begin{array}{r} 9 \\ -2 \\ \hline \end{array}$

r) $\begin{array}{r} 9 \\ -8 \\ \hline \end{array}$

Example: Let's say that you have 24 sheets of paper. You give 5 sheets to your friend. How many sheets are left?

The 20 is then reduced to a 10 (shown here by crossing out the 2 and placing a 1 directly above)

$$\begin{array}{r} 1 \\ \cancel{2}^1 4 \\ - 5 \\ \hline 19 \end{array}$$

The 4 is changed to 14 by borrowing a 10 from the 20. Then add the 10 to the four (shown here by placing a small 1 to the upper-left of the 4)

Two-digit subtraction uses the concept of **BORROWING**. That is, you can't take a large number from a small one i.e. 4 - 5 but you can subtract 14 - 5 by borrowing.

V. Practice

a) $\begin{array}{r} 22 \\ - 9 \\ \hline \end{array}$ b) $\begin{array}{r} 13 \\ - 8 \\ \hline \end{array}$ c) $\begin{array}{r} 23 \\ - 7 \\ \hline \end{array}$ d) $\begin{array}{r} 35 \\ - 6 \\ \hline \end{array}$ e) $\begin{array}{r} 11 \\ - 3 \\ \hline \end{array}$ f) $\begin{array}{r} 11 \\ - 9 \\ \hline \end{array}$

g) $\begin{array}{r} 21 \\ - 3 \\ \hline \end{array}$ h) $\begin{array}{r} 44 \\ - 7 \\ \hline \end{array}$ i) $\begin{array}{r} 60 \\ - 2 \\ \hline \end{array}$ j) $\begin{array}{r} 73 \\ - 8 \\ \hline \end{array}$ k) $\begin{array}{r} 45 \\ - 6 \\ \hline \end{array}$ l) $\begin{array}{r} 57 \\ - 9 \\ \hline \end{array}$

m) $\begin{array}{r} 12 \\ - 4 \\ \hline \end{array}$ n) $\begin{array}{r} 31 \\ - 2 \\ \hline \end{array}$ o) $\begin{array}{r} 76 \\ - 7 \\ \hline \end{array}$ p) $\begin{array}{r} 94 \\ - 6 \\ \hline \end{array}$ q) $\begin{array}{r} 83 \\ - 4 \\ \hline \end{array}$ r) $\begin{array}{r} 24 \\ - 5 \\ \hline \end{array}$

Multiplication of whole numbers

Example: Suppose you have 6 pieces of paper. You buy a package of paper that has five times the amount of paper you have. How many sheets are in the package?

$$\begin{array}{r} 6 \\ \times 5 \\ \hline 30 \end{array}$$

VI. Fill in this table. Look for patterns.

1	2	3	4	5	6	7	8	9
<u>×1</u>	<u>×1</u>	<u>×1</u>	<u>×1</u>	<u>×1</u>	<u>×1</u>	<u>×1</u>	<u>×1</u>	<u>×1</u>
1	2	3						
2	3	4	5	6	7	8	9	
<u>×2</u>	<u>×2</u>	<u>×2</u>	<u>×2</u>	<u>×2</u>	<u>×2</u>	<u>×2</u>	<u>×2</u>	
4	6							
3	4	5	6	7	8	9		
<u>×3</u>	<u>×3</u>	<u>×3</u>	<u>×3</u>	<u>×3</u>	<u>×3</u>	<u>×3</u>		
9								
4	5	6	7	8	9			
<u>×4</u>	<u>×4</u>	<u>×4</u>	<u>×4</u>	<u>×4</u>	<u>×4</u>			
5	6	7	8	9				
<u>×5</u>	<u>×5</u>	<u>×5</u>	<u>×5</u>	<u>×5</u>				
6	7	8	9					
<u>×6</u>	<u>×6</u>	<u>×6</u>	<u>×6</u>					
7	8	9						
<u>×7</u>	<u>×7</u>	<u>×7</u>						
8	9							
<u>×8</u>	<u>×8</u>							
9								
<u>×9</u>								

Remember: Multiplication is just a quick way to do addition

Example: Suppose you have 6 pieces of paper. You buy a package of paper that has twenty-five times the amount of paper you have. How many sheets are in the package?

$$\begin{array}{r} 3 \\ 25 \\ \times 6 \\ \hline 150 \end{array}$$

Double-digit multiplication brings back the concept of carrying. In the above case the 5 and 6 are multiplied to get 30. The 0 is written below the line and the 3 is carried (written above the 2.) The 6 is then multiplied times the 2 to get 12; then the 3 is added to 12 to get 15.

VII. Practice

$$\begin{array}{llllll} \text{a)} \begin{array}{r} 22 \\ \times 9 \\ \hline \end{array} & \text{b)} \begin{array}{r} 13 \\ \times 8 \\ \hline \end{array} & \text{c)} \begin{array}{r} 23 \\ \times 7 \\ \hline \end{array} & \text{d)} \begin{array}{r} 35 \\ \times 6 \\ \hline \end{array} & \text{e)} \begin{array}{r} 14 \\ \times 3 \\ \hline \end{array} & \text{f)} \begin{array}{r} 12 \\ \times 9 \\ \hline \end{array} \end{array}$$

$$\begin{array}{llllll} \text{g)} \begin{array}{r} 26 \\ \times 3 \\ \hline \end{array} & \text{h)} \begin{array}{r} 44 \\ \times 7 \\ \hline \end{array} & \text{i)} \begin{array}{r} 65 \\ \times 2 \\ \hline \end{array} & \text{j)} \begin{array}{r} 73 \\ \times 8 \\ \hline \end{array} & \text{k)} \begin{array}{r} 45 \\ \times 6 \\ \hline \end{array} & \text{l)} \begin{array}{r} 57 \\ \times 9 \\ \hline \end{array} \end{array}$$

$$\begin{array}{llllll} \text{m)} \begin{array}{r} 13 \\ \times 4 \\ \hline \end{array} & \text{n)} \begin{array}{r} 37 \\ \times 2 \\ \hline \end{array} & \text{o)} \begin{array}{r} 76 \\ \times 7 \\ \hline \end{array} & \text{p)} \begin{array}{r} 94 \\ \times 6 \\ \hline \end{array} & \text{q)} \begin{array}{r} 83 \\ \times 4 \\ \hline \end{array} & \text{r)} \begin{array}{r} 53 \\ \times 8 \\ \hline \end{array} \end{array}$$

Division of whole numbers

Example: Let's say you have 6 sheets of paper. You want to split into 2 equal piles. How many sheets will each pile have?

$$\begin{array}{r} \text{divisor} \rightarrow 2 \overline{) 6} \\ \underline{-6} \\ 0 \leftarrow \text{remainder} \end{array}$$

VIII. Practice

a) $3 \overline{) 6}$

b) $2 \overline{) 8}$

c) $4 \overline{) 4}$

d) $3 \overline{) 9}$

e) $2 \overline{) 6}$

f) $4 \overline{) 8}$

g) $2 \overline{) 4}$

h) $2 \overline{) 2}$

Example: Let's say you have 16 sheets of paper. You want to split it into 4 equal piles. How many sheets will each pile have?

$$\begin{array}{r} 4 \\ 4 \overline{) 16} \\ \underline{-16} \\ 0 \end{array}$$

IX. Practice

a) $3 \overline{) 12}$

b) $2 \overline{) 18}$

c) $4 \overline{) 16}$

d) $3 \overline{) 15}$

e) $2 \overline{) 16}$

f) $4 \overline{) 28}$

g) $2 \overline{) 14}$

h) $3 \overline{) 18}$

Example: Suppose you have 16 sheets of paper. You want to split it into 5 equal piles. How many sheets will be in each pile?

3 r 1

$$\begin{array}{r} 5 \overline{)16} \\ -15 \\ \hline 1 \end{array}$$

Division may have numbers that don't divide evenly into each other (that is a remainder other than 0). We write an "r" next to the answer that designates the remainder; we then place the remainder next to the "r". In the above problem, there will be 3 sheets in each pile AND there will be one sheet left over.

X. Practice

a) $3 \overline{)11}$ b) $2 \overline{)17}$ c) $4 \overline{)15}$ d) $3 \overline{)13}$ e) $2 \overline{)19}$ f) $4 \overline{)27}$

g) $2 \overline{)9}$ h) $3 \overline{)19}$ i) $3 \overline{)5}$ j) $3 \overline{)7}$ k) $4 \overline{)17}$ l) $3 \overline{)8}$

m) $2 \overline{)13}$ n) $4 \overline{)30}$ o) $4 \overline{)29}$ p) $2 \overline{)11}$ q) $3 \overline{)4}$ r) $3 \overline{)16}$

Example: Let's say that you have 135 pieces of paper. You want to split it into 10 equal piles. How many pieces will each pile have?

Step 1: 13 goes into 13 one time

Step 2: 13 minus 13 equals zero

Step 3: the 5 is brought straight down

Step 4: 13 goes into 5 zero times

Step 5: the 0 is subtracted from the 5 to get the remainder of 5

Double-digit dividing should be done every 2 digits. There may be a remainder. Otherwise, this type of division is done the same way as single-digit dividing.

XI. Practice

a) $11 \overline{)135}$ b) $12 \overline{)135}$ c) $13 \overline{)135}$ d) $10 \overline{)89}$ e) $10 \overline{)110}$ f) $15 \overline{)155}$

g) $15 \overline{)167}$ h) $19 \overline{)234}$ i) $11 \overline{)210}$ j) $12 \overline{)123}$ k) $13 \overline{)146}$ l) $10 \overline{)87}$

m) $10 \overline{)237}$ n) $11 \overline{)237}$ o) $15 \overline{)152}$ p) $10 \overline{)705}$ q) $19 \overline{)334}$ r) $11 \overline{)133}$

Answers to practice

I. Page 1

a) 3	b) 5	c) 7	d) 8	e) 4	f) 6
g) 9	h) 8	i) 9	j) 9	k) 9	l) 7
m) 8	n) 6	o) 5	p) 6	q) 8	r) 6

II. Page 2

a) 18	b) 13	c) 11	d) 11	e) 10	f) 14
g) 10	h) 12	i) 11	j) 10	k) 12	l) 10
m) 14	n) 17	o) 13	p) 12	q) 12	r) 11

III. Page 3

a) 31	b) 21	c) 30	d) 43	e) 22	f) 20
g) 31	h) 51	i) 71	j) 81	k) 51	l) 66
m) 21	n) 40	o) 84	p) 100	q) 90	r) 67

IV. Page 4

a) 3	b) 3	c) 2	d) 1	e) 6	f) 2
g) 3	h) 1	i) 7	j) 1	k) 1	l) 0
m) 3	n) 6	o) 3	p) 4	q) 7	r) 1

V. Page 5

a) 13	b) 5	c) 16	d) 29	e) 8	f) 2
g) 18	h) 37	i) 58	j) 65	k) 39	l) 48
m) 8	n) 29	o) 69	p) 88	q) 79	r) 19

VI. Page 6

1	2	3	4	5	6	7	8	9
4	6	8	10	12	14	16	18	
9	12	15	18	21	24	27		
16	20	24	28	32	36			
25	30	35	40	45				
36	42	48	54					
49	56	63						
64	72							
81								

VII. Page 7

a) 198	b) 104	c) 161	d) 210	e) 42	f) 108
g) 78	h) 308	i) 130	j) 584	k) 270	l) 513
m) 52	n) 74	o) 532	p) 564	q) 332	r) 424

VIII. Page 8

a) 2	b) 4	c) 1	d) 3	e) 3	f) 2
g) 2	h) 1				

IX. Page 8

a) 4	b) 9	c) 4	d) 5	e) 8	f) 7
g) 7	h) 6				

X. Page 9

a) 3 r 2	b) 8 r 1	c) 3 r 3	d) 4 r 1	e) 9 r 1	f) 6 r 3
g) 4 r 1	h) 6 r 1	i) 1 r 2	j) 2 r 1	k) 4 r 1	l) 2 r 2
m) 6 r 1	n) 7 r 2	o) 7 r 1	p) 5 r 1	q) 1 r 1	r) 5 r 1

XI. Page 10

a) 12 r 3	b) 11 r 3	c) 10 r 5	d) 8 r 9	e) 11 r 0	f) 10 r 5
g) 11 r 2	h) 12 r 6	i) 19 r 1	j) 10 r 3	k) 11 r 3	l) 8 r 7
m) 23 r 7	n) 21 r 6	o) 10 r 2	p) 70 r 5	q) 17 r 11	r) 12 r 1