

## PLACE VALUE & SUBTRACTION

Algorithm Lab • Tens, Ones, and Exchange

Objective: Subtract by place value, exchanging units without changing the quantity.

**DO THIS** Show each number by place value. Exchange a unit when you need to, then subtract.

**EXCHANGE** One ten is ten ones — the quantity does not change.

**EXAMPLE**

T	O
5	2

$$\begin{array}{r} 52 \\ - 28 \\ \hline 24 \end{array}$$

52 = 40 + 12.

Exchange one ten for ten ones, then subtract.

1 ten becomes 10 ones

**BUILD & SUBTRACT** Show the number, then subtract by place value.

1

H	T	O
2	4	7

$$\begin{array}{r} 247 \\ - 113 \\ \hline \end{array}$$

2

H	T	O
7	8	8

$$\begin{array}{r} 788 \\ - 498 \\ \hline \end{array}$$

3

H	T	O
9	0	4

$$\begin{array}{r} 904 \\ - 147 \\ \hline \end{array}$$

**INDEPENDENT PRACTICE** Subtract. Keep your columns aligned.

1

$$\begin{array}{r} 561 \\ - 546 \\ \hline \end{array}$$

2

$$\begin{array}{r} 727 \\ - 406 \\ \hline \end{array}$$

3

$$\begin{array}{r} 833 \\ - 380 \\ \hline \end{array}$$

4

$$\begin{array}{r} 848 \\ - 375 \\ \hline \end{array}$$

5

$$\begin{array}{r} 747 \\ - 427 \\ \hline \end{array}$$

6

$$\begin{array}{r} 977 \\ - 729 \\ \hline \end{array}$$

7

$$\begin{array}{r} 239 \\ - 230 \\ \hline \end{array}$$

8

$$\begin{array}{r} 450 \\ - 348 \\ \hline \end{array}$$

9

$$\begin{array}{r} 759 \\ - 737 \\ \hline \end{array}$$

**PROVE IT** Check with addition.

1  $388 + \square = 470$

2  $606 + \square = 784$

3  $774 + \square = 775$

To subtract I:  exchanged a unit  kept columns aligned  checked with addition

TEACHER EDITION

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Objective: *Subtract by place value, exchanging units without changing the quantity.*

**DO THIS** Show each number by place value. Exchange a unit when you need to, then subtract.

**EXCHANGE** One ten is ten ones — the quantity does not change.

EXAMPLE

T	O
5	2

$$\begin{array}{r} 52 \\ - 28 \\ \hline 24 \end{array}$$

52 = 40 + 12.

Exchange one ten for ten ones, then subtract.

1 ten becomes 10 ones

**BUILD & SUBTRACT** Show the number, then subtract by place value.

1

H	T	O
2	4	7

$$\begin{array}{r} 247 \\ - 113 \\ \hline 134 \end{array}$$

2

H	T	O
7	8	8

$$\begin{array}{r} 788 \\ - 498 \\ \hline 290 \end{array}$$

3

H	T	O
9	0	4

$$\begin{array}{r} 904 \\ - 147 \\ \hline 757 \end{array}$$

**INDEPENDENT PRACTICE** Subtract. Keep your columns aligned.

1

$$\begin{array}{r} 561 \\ - 546 \\ \hline 15 \end{array}$$

2

$$\begin{array}{r} 727 \\ - 406 \\ \hline 321 \end{array}$$

3

$$\begin{array}{r} 833 \\ - 380 \\ \hline 453 \end{array}$$

4

$$\begin{array}{r} 848 \\ - 375 \\ \hline 473 \end{array}$$

5

$$\begin{array}{r} 747 \\ - 427 \\ \hline 320 \end{array}$$

6

$$\begin{array}{r} 977 \\ - 729 \\ \hline 248 \end{array}$$

7

$$\begin{array}{r} 239 \\ - 230 \\ \hline 9 \end{array}$$

8

$$\begin{array}{r} 450 \\ - 348 \\ \hline 102 \end{array}$$

9

$$\begin{array}{r} 759 \\ - 737 \\ \hline 22 \end{array}$$

**PROVE IT** Check with addition.

1  $388 + \underline{82} = 470$

2  $606 + \underline{178} = 784$

3  $774 + \underline{1} = 775$

**TEACHER NOTES** Answer key & guidance

Answers: aligned vertical differences

Common error: Subtracting the smaller digit from the larger in each column

Strategy: Rename one unit as ten of the next-smaller unit

Prompt: "Do you have enough ones, or must you exchange a ten?"

To subtract I:  exchanged a unit  kept columns aligned  checked with addition