

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
5	4	2

$$\begin{array}{r} 542 \\ - 182 \\ \hline \end{array}$$

2

H	T	O
5	4	7

$$\begin{array}{r} 547 \\ - 439 \\ \hline \end{array}$$

3

H	T	O
7	9	4

$$\begin{array}{r} 794 \\ - 545 \\ \hline \end{array}$$

INDEPENDENT PRACTICE Subtract. Keep your columns aligned.

1

$$\begin{array}{r} 395 \\ - 103 \\ \hline \end{array}$$

2

$$\begin{array}{r} 157 \\ - 135 \\ \hline \end{array}$$

3

$$\begin{array}{r} 683 \\ - 184 \\ \hline \end{array}$$

4

$$\begin{array}{r} 930 \\ - 100 \\ \hline \end{array}$$

5

$$\begin{array}{r} 485 \\ - 207 \\ \hline \end{array}$$

6

$$\begin{array}{r} 739 \\ - 366 \\ \hline \end{array}$$

7

$$\begin{array}{r} 796 \\ - 158 \\ \hline \end{array}$$

8

$$\begin{array}{r} 984 \\ - 173 \\ \hline \end{array}$$

9

$$\begin{array}{r} 575 \\ - 571 \\ \hline \end{array}$$

PROVE IT Check with addition.

1 $138 + \square = 183$

2 $538 + \square = 617$

3 $746 + \square = 954$

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

TEACHER EDITION

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

EXAMPLE

T	O
5	2

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

1 ten becomes 10 ones

$52 = 40 + 12.$

Exchange one ten for ten ones, then subtract.

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

1

H	T	O
5	4	2

$$\begin{array}{r} 542 \\ - 182 \\ \hline 360 \end{array}$$

2

H	T	O
5	4	7

$$\begin{array}{r} 547 \\ - 439 \\ \hline 108 \end{array}$$

3

H	T	O
7	9	4

$$\begin{array}{r} 794 \\ - 545 \\ \hline 249 \end{array}$$

INDEPENDENT PRACTICE Subtract. Keep your columns aligned.

1

$$\begin{array}{r} 395 \\ - 103 \\ \hline 292 \end{array}$$

2

$$\begin{array}{r} 157 \\ - 135 \\ \hline 22 \end{array}$$

3

$$\begin{array}{r} 683 \\ - 184 \\ \hline 499 \end{array}$$

4

$$\begin{array}{r} 930 \\ - 100 \\ \hline 830 \end{array}$$

5

$$\begin{array}{r} 485 \\ - 207 \\ \hline 278 \end{array}$$

6

$$\begin{array}{r} 739 \\ - 366 \\ \hline 373 \end{array}$$

7

$$\begin{array}{r} 796 \\ - 158 \\ \hline 638 \end{array}$$

8

$$\begin{array}{r} 984 \\ - 173 \\ \hline 811 \end{array}$$

9

$$\begin{array}{r} 575 \\ - 571 \\ \hline 4 \end{array}$$

PROVE IT Check with addition.

1 $138 + \underline{45} = 183$

2 $538 + \underline{79} = 617$

3 $746 + \underline{208} = 954$

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