

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

1 ten becomes 10 ones

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

$$52 = 40 + 12.$$

Exchange one ten for ten ones, then subtract.

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

1

Th	H	T	O
5	4	8	6

$$\begin{array}{r} 5486 \\ - 3208 \\ \hline \end{array}$$

2

Th	H	T	O
3	7	0	4

$$\begin{array}{r} 3704 \\ - 2822 \\ \hline \end{array}$$

3

Th	H	T	O
8	4	4	0

$$\begin{array}{r} 8440 \\ - 5884 \\ \hline \end{array}$$

INDEPENDENT PRACTICE Subtract. Keep your columns aligned.

1

$$\begin{array}{r} 8085 \\ - 2080 \\ \hline \end{array}$$

2

$$\begin{array}{r} 2347 \\ - 1226 \\ \hline \end{array}$$

3

$$\begin{array}{r} 2684 \\ - 1852 \\ \hline \end{array}$$

4

$$\begin{array}{r} 8977 \\ - 2596 \\ \hline \end{array}$$

5

$$\begin{array}{r} 8167 \\ - 5389 \\ \hline \end{array}$$

6

$$\begin{array}{r} 9623 \\ - 1759 \\ \hline \end{array}$$

7

$$\begin{array}{r} 9359 \\ - 4374 \\ \hline \end{array}$$

8

$$\begin{array}{r} 7748 \\ - 5147 \\ \hline \end{array}$$

9

$$\begin{array}{r} 7648 \\ - 5389 \\ \hline \end{array}$$

PROVE IT Check with addition.

1 $1447 + \square = 1855$

2 $1597 + \square = 1635$

3 $4905 + \square = 5941$

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

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

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

Th	H	T	O
5	4	8	6

$$\begin{array}{r} 5486 \\ - 3208 \\ \hline 2278 \end{array}$$

2

Th	H	T	O
3	7	0	4

$$\begin{array}{r} 3704 \\ - 2822 \\ \hline 882 \end{array}$$

3

Th	H	T	O
8	4	4	0

$$\begin{array}{r} 8440 \\ - 5884 \\ \hline 2556 \end{array}$$

INDEPENDENT PRACTICE Subtract. Keep your columns aligned.

1

$$\begin{array}{r} 8085 \\ - 2080 \\ \hline 6005 \end{array}$$

2

$$\begin{array}{r} 2347 \\ - 1226 \\ \hline 1121 \end{array}$$

3

$$\begin{array}{r} 2684 \\ - 1852 \\ \hline 832 \end{array}$$

4

$$\begin{array}{r} 8977 \\ - 2596 \\ \hline 6381 \end{array}$$

5

$$\begin{array}{r} 8167 \\ - 5389 \\ \hline 2778 \end{array}$$

6

$$\begin{array}{r} 9623 \\ - 1759 \\ \hline 7864 \end{array}$$

7

$$\begin{array}{r} 9359 \\ - 4374 \\ \hline 4985 \end{array}$$

8

$$\begin{array}{r} 7748 \\ - 5147 \\ \hline 2601 \end{array}$$

9

$$\begin{array}{r} 7648 \\ - 5389 \\ \hline 2259 \end{array}$$

PROVE IT Check with addition.

1 $1447 + \underline{408} = 1855$

2 $1597 + \underline{38} = 1635$

3 $4905 + \underline{1036} = 5941$

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