

Learning Reminders

Multiply and divide by 10, 100 and 1000.

We can use a place value grid to multiply 4.52×10 , then 4.52×100 , then 4.52×1000 .

1000s	100s	10s	1s	0.1s $\frac{1}{10}$ s	0.01s $\frac{1}{100}$ s
			4	5	2
		4	5	2	
	4	5	2		
4	5	2	0		

When we **multiply** by 10, 100 and 1000, the digits all move together, 1, 2, or 3 place value columns to the **left**.

Learning Reminders

Multiply and divide by 10, 100 and 1000.

We can use a place value grid to divide $2340 \div 10$, then $2340 \div 100$, then $2340 \div 1000$.

1000s	100s	10s	1s	0.1s $\frac{1}{10}$ s	0.01s $\frac{1}{100}$ s
2	3	4	0		
	2	3	4		
		2	3	4	
			2	3	4

When we **divide** by 10, 100 and 1000, the digits move together, 1, 2, or 3 place value columns to the **right**.

The final zero is not needed after the decimal point.

But be careful with numbers like 507 where the zero is not at the end:

$$507 \div 100 = 5.07 \text{ NOT } 5.7$$

Practice Sheet Mild

Multiply and divide by 10, 100 and 1000

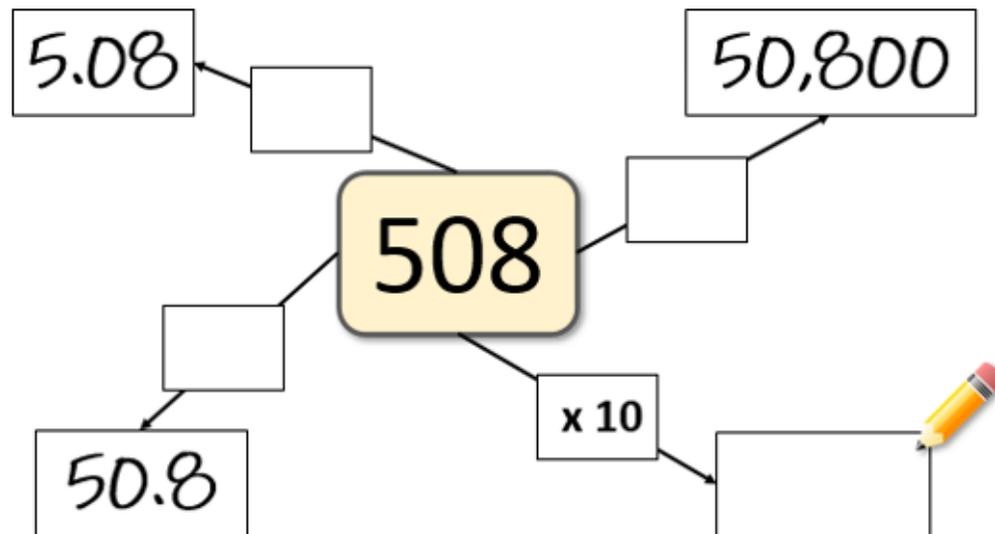
A 245×10 245×100 $245 \div 10$ $245 \div 100$

B 54.3×10 54.3×100 $54.3 \div 10$ $54.3 \div 100$

C 3.47×10 3.47×100 3.47×1000

D $7640 \div 10$ $7640 \div 100$ $7640 \div 1000$

Challenge



Place value grid

1000s	100s	10s	1s	● 0.1s	$\frac{1}{10}$ s	0.01s	$\frac{1}{100}$ s

Practice Sheet Hot

Multiply and divide by 10, 100 and 1000

A 3.47×10 3.47×100 3.47×1000

B $7640 \div 10$ $7640 \div 100$ $7640 \div 1000$

C $845 \times \underline{\hspace{2cm}} = 845,000$ $845 \div \underline{\hspace{2cm}} = 8.45$

D $\underline{\hspace{2cm}} \times 10 = 36.2$ $\underline{\hspace{2cm}} \div 100 = 36.2$

E $24.5 \times 10 \div 100 \times 1000 \div \underline{\hspace{2cm}} = 24.5$

Challenge

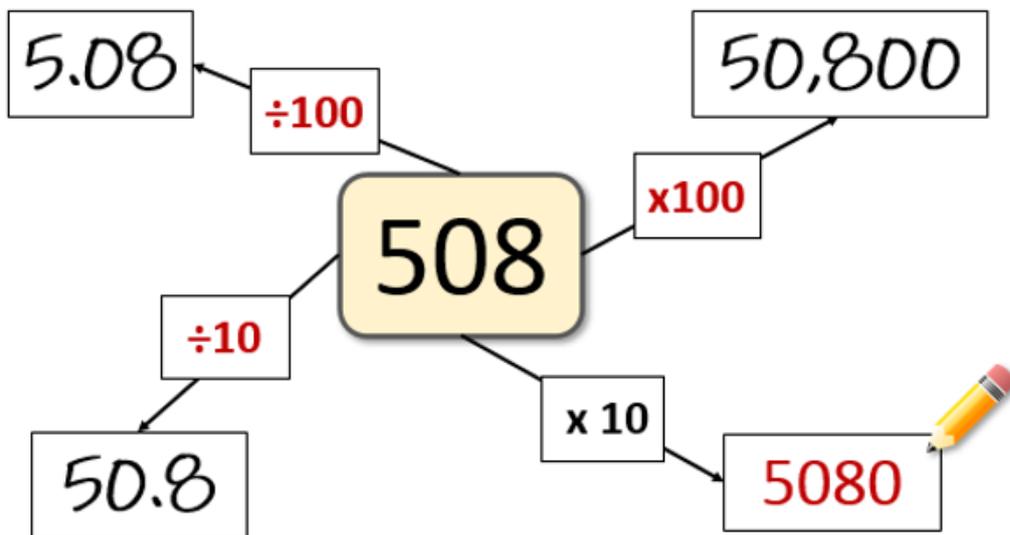
Write your own chain of at least four steps which starts and ends on the same number, like Section G.

Practice Sheets Answers

Multiply and divide by 10, 100 and 1000 (mild)

A	$245 \times 10 = 2450$	$245 \times 100 = 24500$	$245 \div 10 = 24.5$
	$245 \div 100 = 2.45$		
B	$54.3 \times 10 = 543$	$54.3 \times 100 = 5430$	$54.3 \div 10 = 5.43$
	$54.3 \div 100 = 0.543$		
C	$3.47 \times 10 = 34.7$	$3.47 \times 100 = 347$	$3.47 \times 1000 = 3470$
D	$7640 \div 10 = 764$	$7640 \div 100 = 76.4$	$7640 \div 1000 = 7.64$

Challenge



Multiply and divide by 10, 100 and 1000 (hot)

A	$3.47 \times 10 = 34.7$	$3.47 \times 100 = 347$	$3.47 \times 1000 = 3470$
B	$7640 \div 10 = 764$	$7640 \div 100 = 76.4$	$7640 \div 1000 = 7.64$
C	$845 \times 1000 = 845,000$	$845 \div 100 = 8.45$	
D	$3.62 \times 10 = 36.2$	$362 \div 100 = 3.62$	
E	$24.5 \times 10 \div 100 \times 1000 \div 100 = 24.5$		

A Bit Stuck?

Multiplying and dividing by 10 and 100

34×10

34×100

3.4×10

3.4×100

$650 \div 10$

$650 \div 100$

$72 \div 10$

$7 \div 10$

$800 \div 100$

$80 \div 100$

$4.5 \times \square = 45$

$4.5 \times \square = 450$

$270 \div \square = 2.7$

$270 \div \square = 27$

Challenge

$3.6 \times \square \times \square = 360$

$940 \div \square \div \square = 9.4$

$72 \times \square \div \square = 7.2$

Place value grid

1000s	100s	10s	1s	● 0.1s	$\frac{1}{10}$ s	0.01s	$\frac{1}{100}$ s

A Bit Stuck? Answers

Multiplying and dividing by 10 and 100

$34 \times 10 = 340$

$34 \times 100 = 3400$

$3.4 \times 10 = 34$

$3.4 \times 100 = 340$

$650 \div 10 = 65$

$650 \div 100 = 6.5$

$72 \div 10 = 7.2$

$7 \div 10 = 0.7$

$800 \div 100 = 8$

$80 \div 100 = 0.8$

$4.5 \times 10 = 45$

$4.5 \times 100 = 450$

$270 \div 100 = 2.7$

$270 \div 10 = 27$

Challenge

$3.6 \times 10 \times 10 = 360$

$940 \div 10 \div 10 = 9.4$

$72 \times 10 \div 100 = 7.2$

Investigation

Find my route

Investigate routes through a grid, multiplying and dividing by 10, 100 or 1000

- Starting with 435 trace a route through the grid, moving horizontally or vertically between boxes.
- What outcome do you get? Record it.
- Try another route.
- What outcome do you get? Record it.
- Try at least 4 different routes through the grid
- How many different outcomes can you find?

Example

Start at 435
move right,
move down,
move down,
move down,
move right...END
 $435 \div 100 \times 10 \times 100$
 $\div 10 \times 10 = 4350$

Investigate

- *What are the smallest and largest possible outputs?*
- *Does the longest path have the largest output?*
- Now choose a different 3-digit starting number.

Challenge

Draw a route on the grid. If we follow this, what **single calculation** can replace all those we do en-route?

Answer the calculations to check.

Repeat with another route.

What if diagonal moves were allowed?

Investigation Resource Sheet

435	$\div 100$	$\times 10$	$\times 10$
$\div 10$	$\times 10$	$\times 100$	$\div 100$
$\div 10$	$\times 100$	$\div 100$	$\times 10$
$\times 10$	$\div 10$	$\times 10$	END