Multiplication Strategies

171 Calculation & Vocabulary

173 M1 Objects and Pictures

175 M2 Repeated Addition

177 M3 Arrays

179 M4 Multi Boing!

181 M5 Partitoning

183 M6 Grid Method

186 M7 Expanded Column

189 M8 Column Multiplication

193 M9 Grid Method (Long Mult.)

201 M10 Long Multiplication

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Multiplication

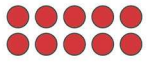
Y1

M1: Objects and Pictures

"A bag of 5 red footballs and a bag of 5 blue footballs makes 10 footballs altogether."

M1a: Objects and Pictures

M3: Arrays



"2 groups of 5 counters" or "5 groups of 2 counters" - "10 counters altogether"

Multiplication Strategies

- Calculation & Vocabulary
- M1 Objects and Pictures
- M2 Repeated Addition
- M3 Arrays
- M4 Multi Boing!
- M5 Partitioning
- M6 Grid Method
- M7 Expanded Column
- M8 Grid Method (Long Mult.)
- M9 Long Multiplication
- M10 Long Multiplication

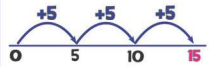
Y2

M2: Repeated Addition (Groups)

5 x 3 = 5 + 5 + 5 = 15

"5 multiplied by 3" means "5, 3 times", which gives "3 lots of 5"!

M2a: Repeated Addition (Number Line)



5 x 3 = 5 + 5 + 5 = 15

"5 times 3" means "5, 3 times!"

M3: Arrays

3 x 5 = 15 or 5 x 3 = 15

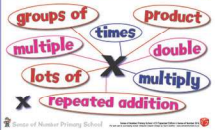
Multiplication Calculation

4 x 2 = 8

(multiplied by) (equals)

multiplicand x multiplier = product

Multiplication Vocabulary



Y2

MF: 2x Table Facts

2 x 1 = 2	2 x 7 = 14
2 x 2 = 4	2 x 8 = 16
2 x 3 = 6	2 x 9 = 18
2 x 4 = 8	2 x 10 = 20
2 x 5 = 10	2 x 11 = 22
2 x 6 = 12	2 x 12 = 24

MF: 5x Table Facts

5 x 1 = 5	5 x 7 = 35
5 x 2 = 10	5 x 8 = 40
5 x 3 = 15	5 x 9 = 45
5 x 4 = 20	5 x 10 = 50
5 x 5 = 25	5 x 11 = 55
5 x 6 = 30	5 x 12 = 60

MF: 10x Table Facts

10 x 1 = 10	10 x 7 = 70
10 x 2 = 20	10 x 8 = 80
10 x 3 = 30	10 x 9 = 90
10 x 4 = 40	10 x 10 = 100
10 x 5 = 50	10 x 11 = 110
10 x 6 = 60	10 x 12 = 120

Y3

MF: 3x Table Facts

3 x 1 = 3	3 x 7 = 21
3 x 2 = 6	3 x 8 = 24
3 x 3 = 9	3 x 9 = 27
3 x 4 = 12	3 x 10 = 30
3 x 5 = 15	3 x 11 = 33
3 x 6 = 18	3 x 12 = 36

MF: 4x Table Facts

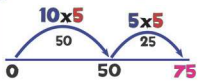
4 x 1 = 4	4 x 7 = 28
4 x 2 = 8	4 x 8 = 32
4 x 3 = 12	4 x 9 = 36
4 x 4 = 16	4 x 10 = 40
4 x 5 = 20	4 x 11 = 44
4 x 6 = 24	4 x 12 = 48

MF: 8x Table Facts

8 x 1 = 8	8 x 7 = 56
8 x 2 = 16	8 x 8 = 64
8 x 3 = 24	8 x 9 = 72
8 x 4 = 32	8 x 10 = 80
8 x 5 = 40	8 x 11 = 88
8 x 6 = 48	8 x 12 = 96

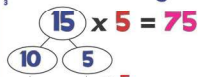
Y3

M4: Multi Boing!



15 x 5 = 75

M5: Partitioning



50 + 25 = 75

M6: Grid Method Short Multiplication

15 x 5 = 75

x	10	5
5	50	25

50 + 25 = 75

(M7: Expanded Column)

(M8: Column Multiplication)

Y4

MF: 6x Table Facts

6 x 1 = 6	6 x 7 = 42
6 x 2 = 12	6 x 8 = 48
6 x 3 = 18	6 x 9 = 54
6 x 4 = 24	6 x 10 = 60
6 x 5 = 30	6 x 11 = 66
6 x 6 = 36	6 x 12 = 72

MF: 7x Table Facts

7 x 1 = 7	7 x 7 = 49
7 x 2 = 14	7 x 8 = 56
7 x 3 = 21	7 x 9 = 63
7 x 4 = 28	7 x 10 = 70
7 x 5 = 35	7 x 11 = 77
7 x 6 = 42	7 x 12 = 84

M4a: Multi Boing!

43 x 6 = 258

M5a: Partitioning

240 + 18 = 258

M6a: Grid Method Short Multiplication

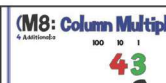
43 x 6 = 258

x	40	3
6	240	18

240 + 18 = 258

(M7: Expanded Column)

(M8: Column Multiplication)



Y4

MF: 9x Table Facts

9 x 1 = 9	9 x 7 = 63
9 x 2 = 18	9 x 8 = 72
9 x 3 = 27	9 x 9 = 81
9 x 4 = 36	9 x 10 = 90
9 x 5 = 45	9 x 11 = 99
9 x 6 = 54	9 x 12 = 108

MF: 11x Table Facts

11 x 1 = 11	11 x 7 = 77
11 x 2 = 22	11 x 8 = 88
11 x 3 = 33	11 x 9 = 99
11 x 4 = 44	11 x 10 = 110
11 x 5 = 55	11 x 11 = 121
11 x 6 = 66	11 x 12 = 132

MF: 12x Table Facts

12 x 1 = 12	12 x 7 = 84
12 x 2 = 24	12 x 8 = 96
12 x 3 = 36	12 x 9 = 108
12 x 4 = 48	12 x 10 = 120
12 x 5 = 60	12 x 11 = 132
12 x 6 = 72	12 x 12 = 144

M6b: Grid Method Short Multiplication

147 x 4 = 588

x	100	40	7
4	400	160	28

400 + 160 + 28 = 588

M7: Expanded Column

M8: Column Multiplication

M8a: Column Multiplication

Y5

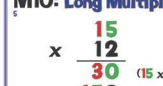
M9: Grid Method Long Multiplication

15 x 12 = 180

x	10	5
10	100	50
2	20	10

100 + 50 + 20 + 10 = 180

M10: Long Multiplication Column



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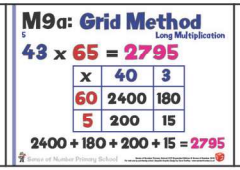
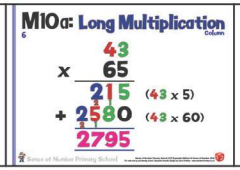
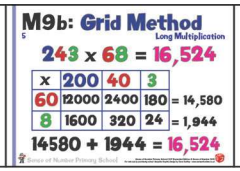
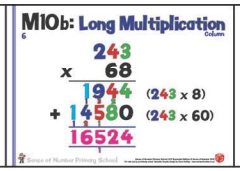
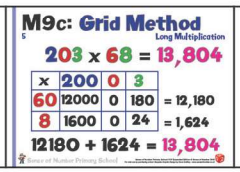
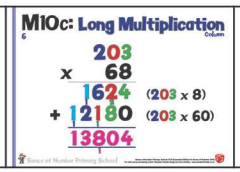
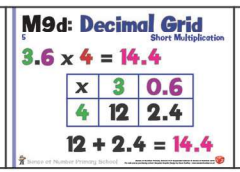
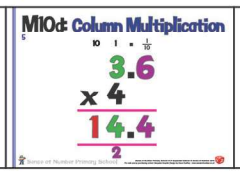
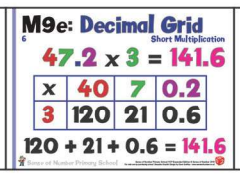
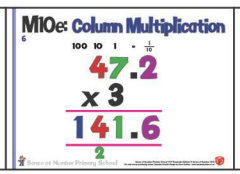
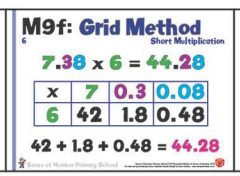
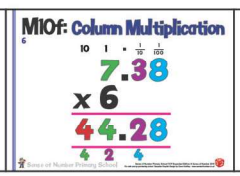
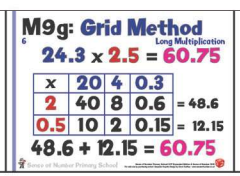
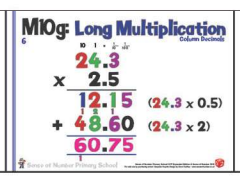
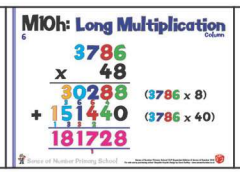
Y5							
Y5							
Y5							
Y5							
Y6							
Y6							
Y6							
							

Progression Overviews

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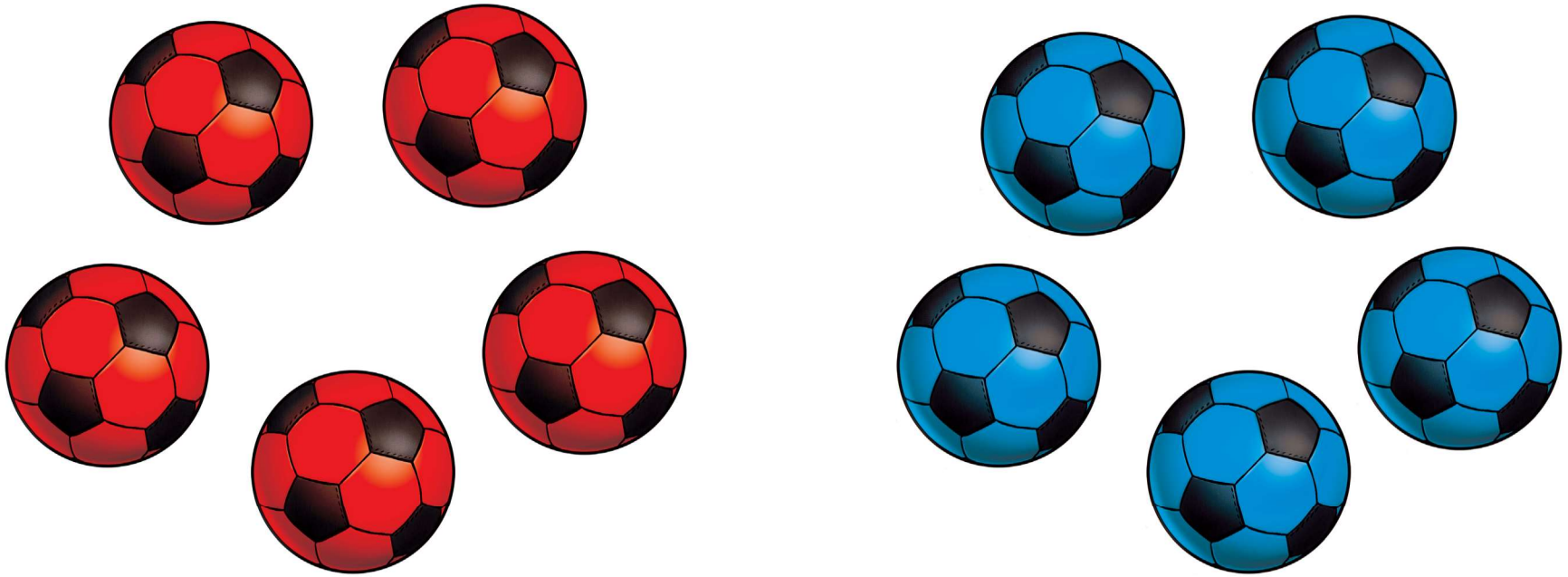
M1: Objects and Pictures

1



"A bag of 5 red footballs and a bag of 5 blue footballs makes 10 footballs altogether."

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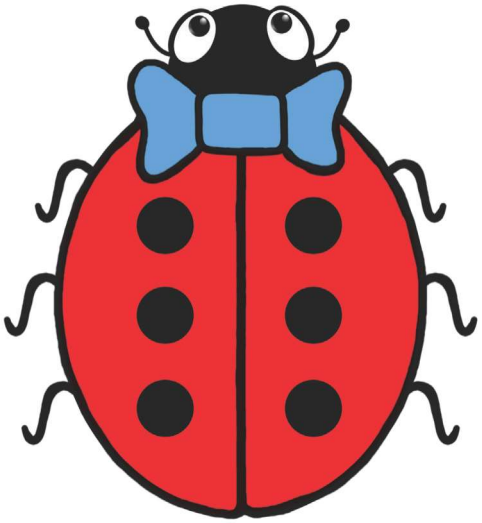
M1a: Objects and Pictures

1



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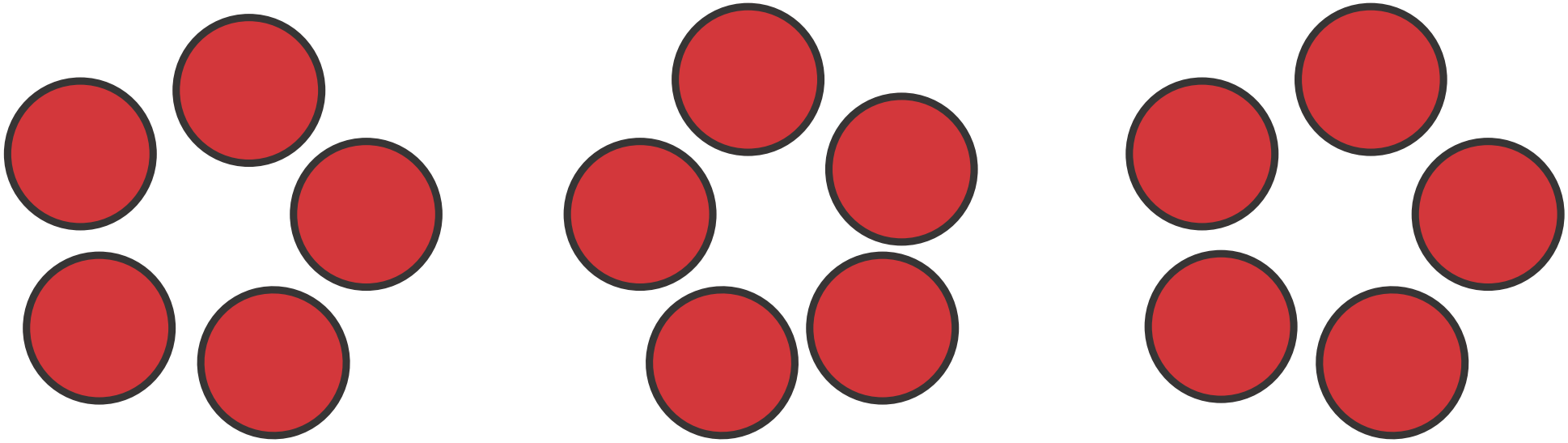
M2: Repeated Addition

2

(Groups)



5 x 3 = 5 + 5 + 5 = 15

"5 multiplied by 3" means "5, 3 times", which gives "3 lots of 5"!

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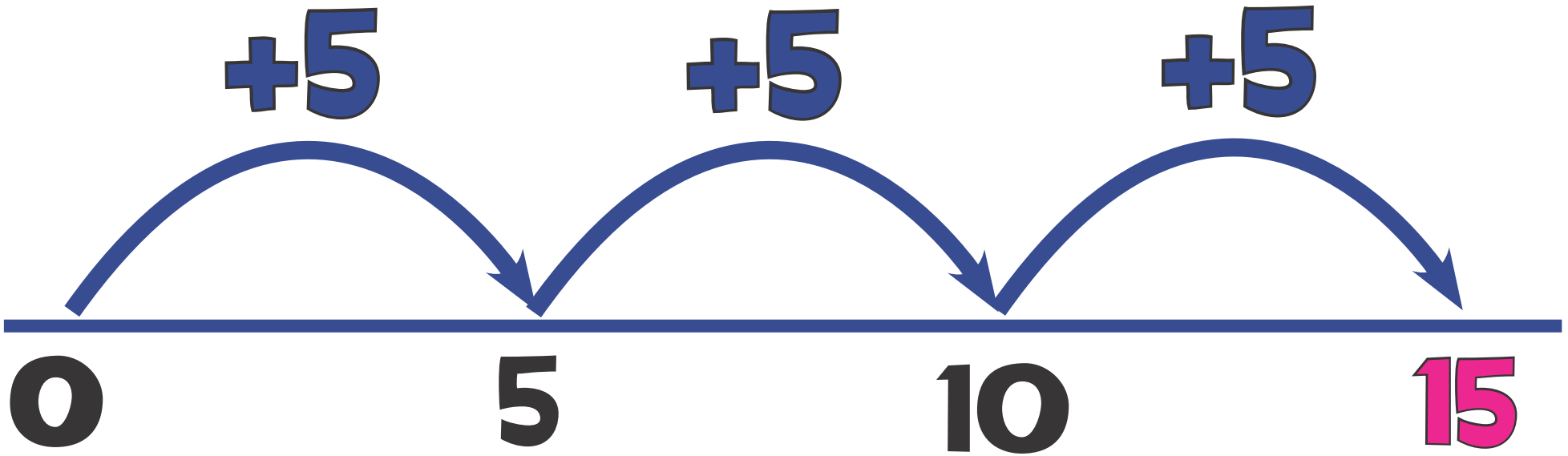
M2a: Repeated Addition (Number Line)

2



$5 \times 3 = 5 + 5 + 5 = 15$

"5 times 3" means "5, 3 times!"

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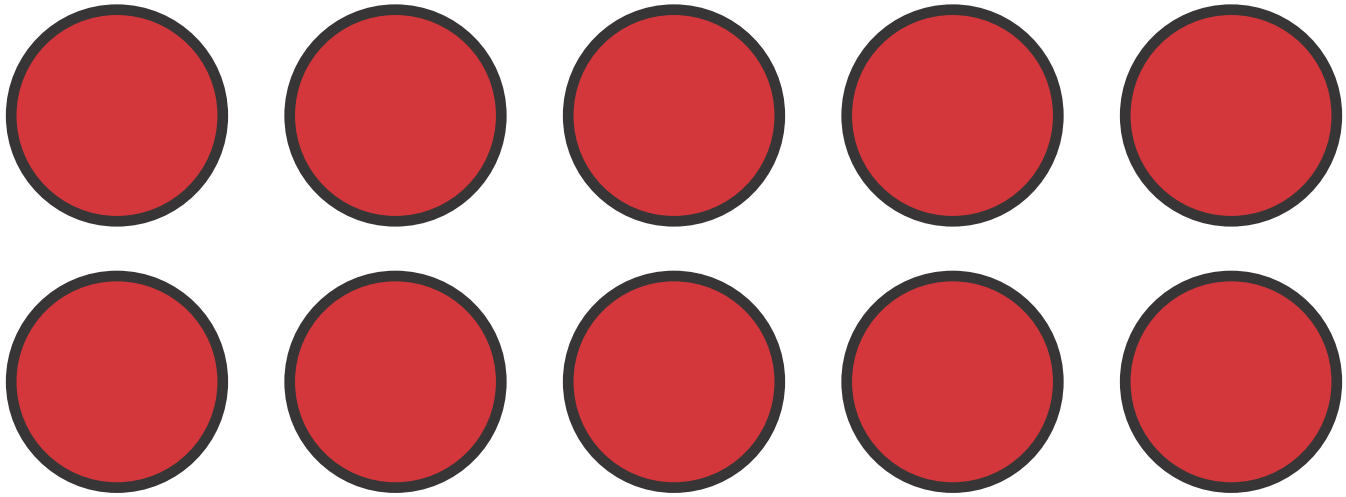
M3: Arrays

1



"2 groups of 5 counters" or "5 groups of 2 counters" - "10 counters altogether"

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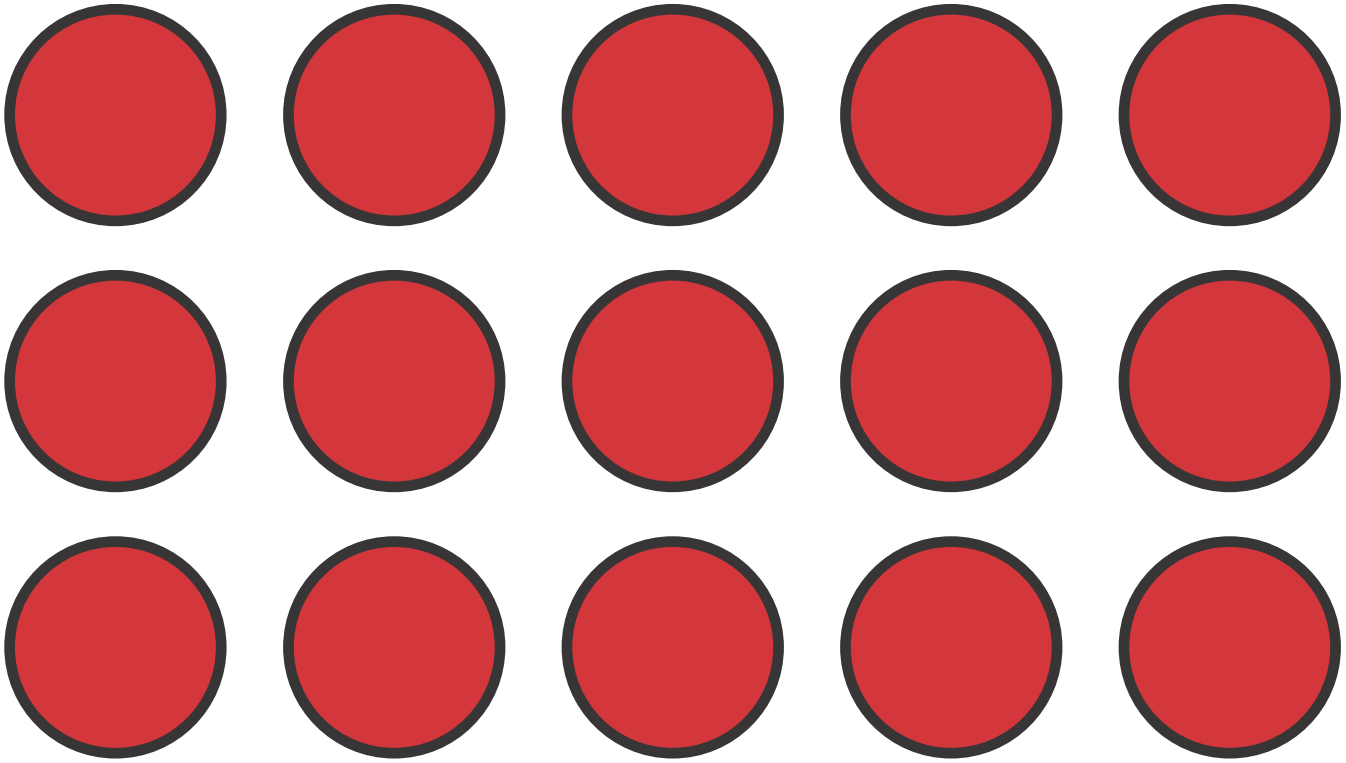
M3: Arrays

2



$3 \times 5 = 15$ or $5 \times 3 = 15$

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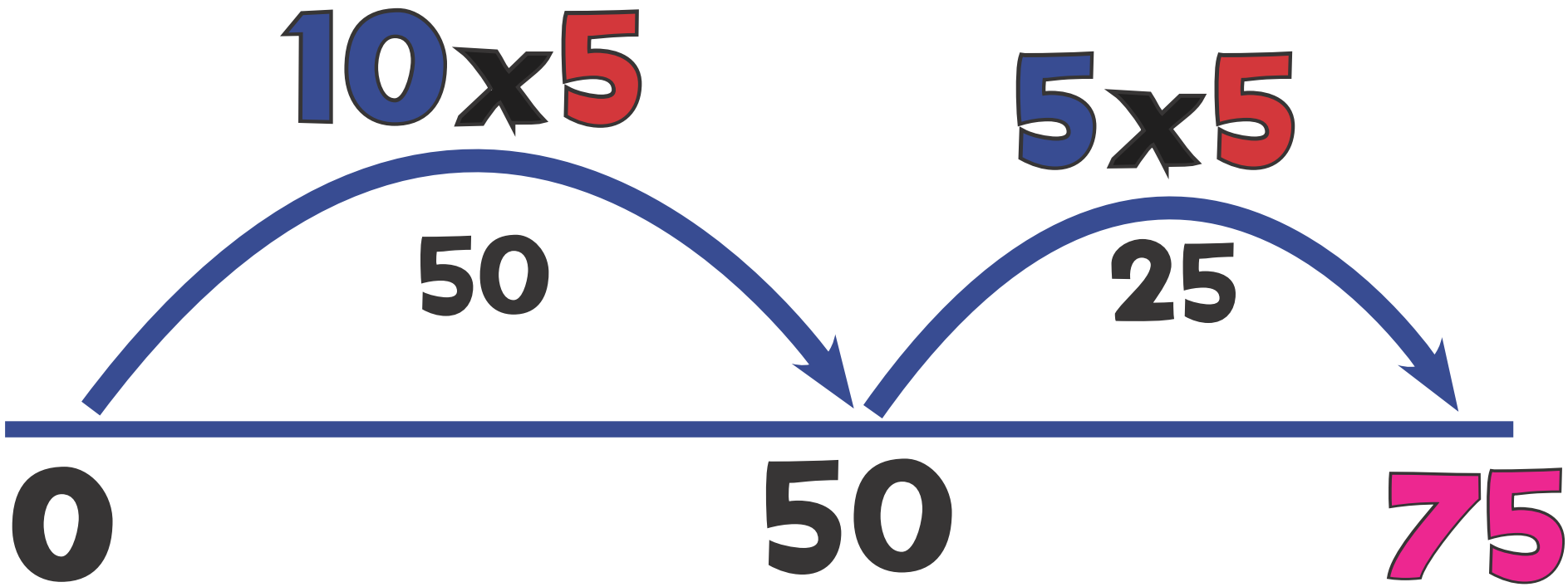
M4: Multi Boing!

3



15 x 5 = 75

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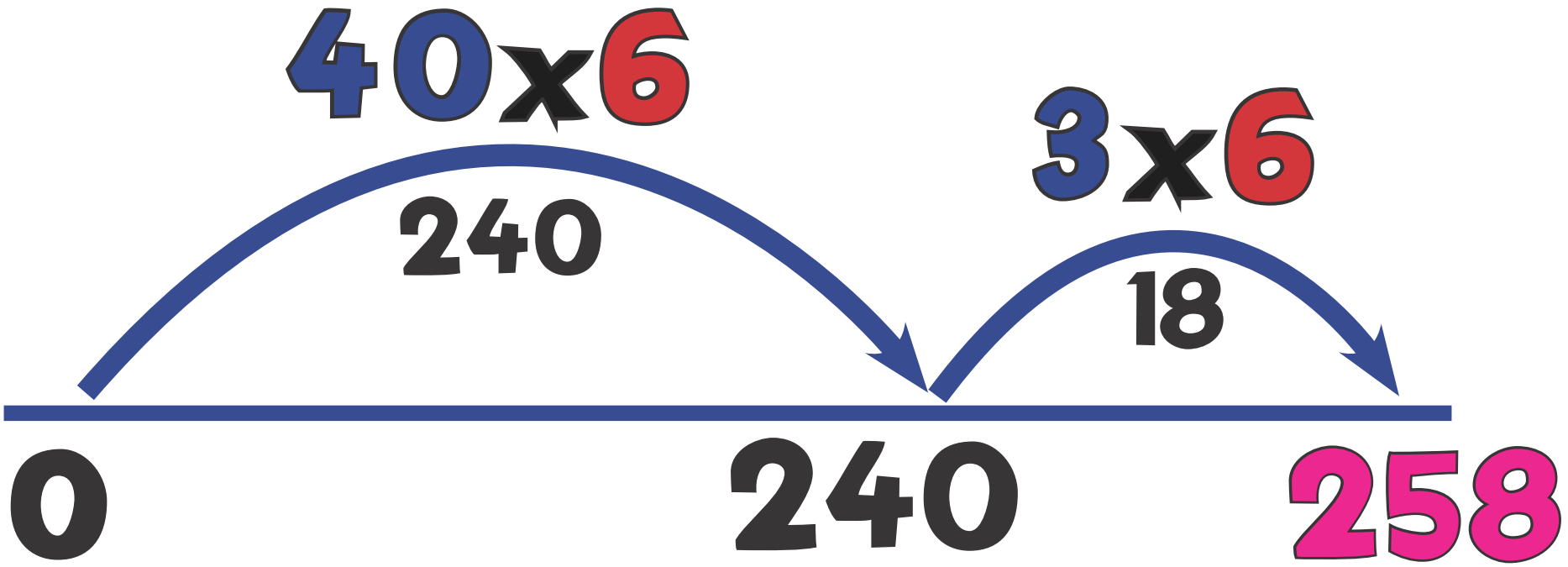
M4a: Multi Boing!

4



43 x 6 = 258

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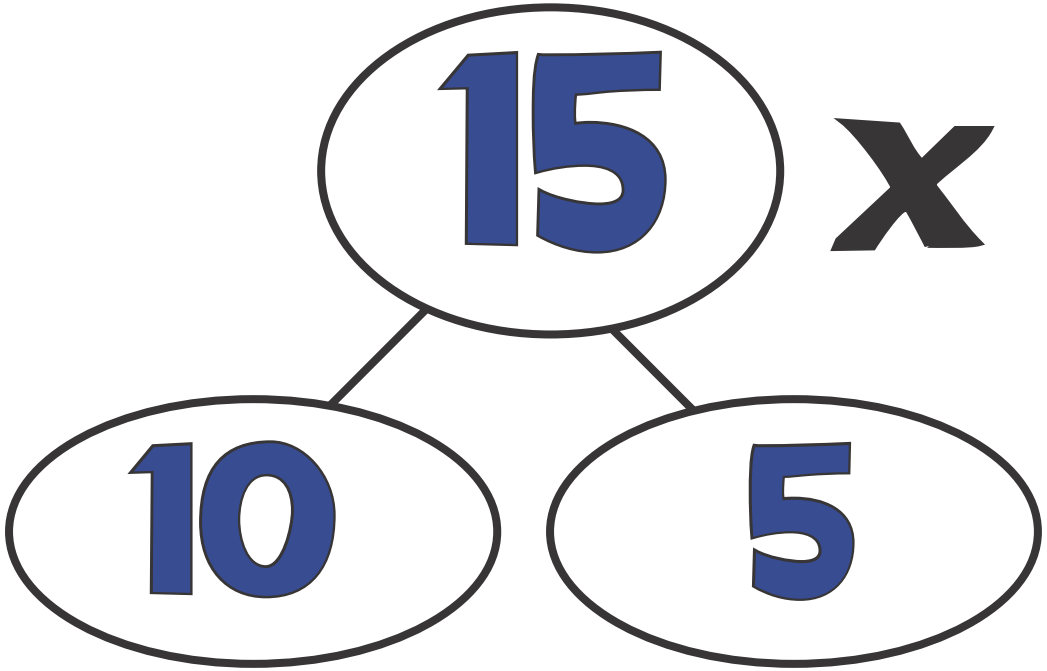
M5: Partitioning

3



15 x 5 = 75

x 5

50 + 25 = 75

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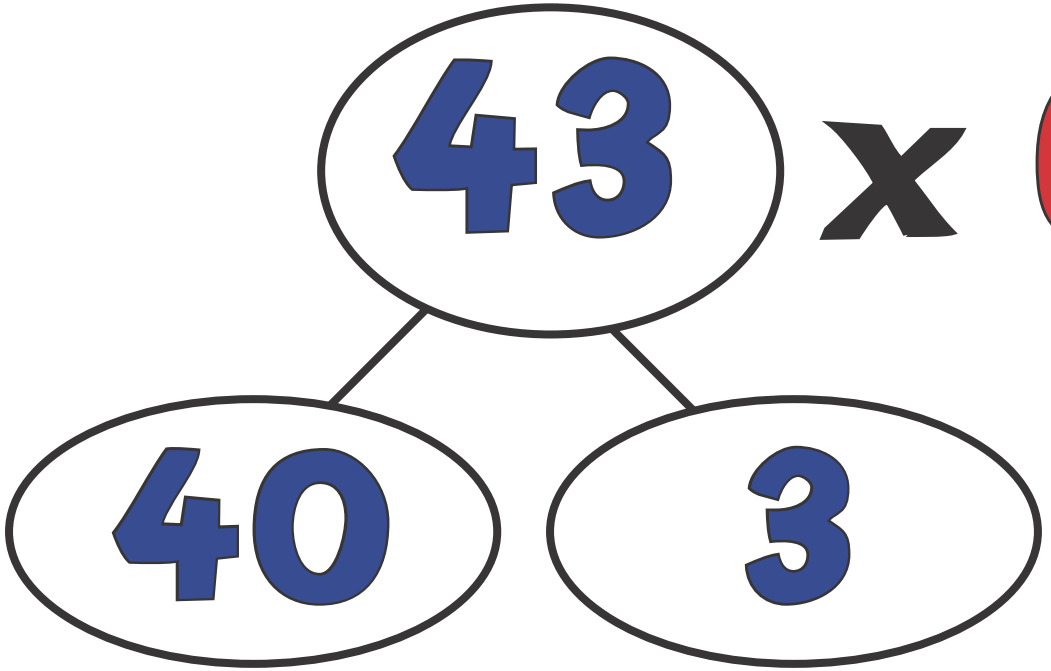
M5a: Partitioning

4



43 x 6 = 258

x 6

240 + 18 = 258

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M6: Grid Method

3

Short Multiplication

15 x 5 = 75

x	10	5
5	50	25

50 + 25 = 75

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M6a: Grid Method

4

Short Multiplication

43 x 6 = 258

x	40	3
6	240	18

240 + 18 = 258

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M6b: Grid Method

4

Short Multiplication

147 x 4 = 588

x	100	40	7
4	400	160	28

400 + 160 + 28 = 588

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M7: Expanded Column

3

	10	1
	1	5
x		5
	2	5
	5	0
	7	5

(5 x 5)

(10 x 4)

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M7a: Expanded Column

4

	100	10	1	
		4	3	
x			6	
		1	8	(3 x 6)
	2	4	0	(40 x 6)
	2	5	8	

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M7b: Expanded Column

4

	100	10	1	
	1	4	7	
x			4	
		2	8	(7 x 4)
	1	6	0	(40 x 4)
	4	0	0	(100 x 4)
	5	8	8	

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M8: Column Multiplication

3

	10	1
	1	5
x		5
	7	5
	2	

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M8a: Column Multiplication

4

100	10	1
	4	3
x		6
2	5	8
	1	

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M8b: Column Multiplication

4

100	10	1
1	4	7
x		4
5	8	8
1	2	

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M8c: Column Multiplication

4

$$\begin{array}{r} 3647 \\ \times \quad 4 \\ \hline 14588 \\ \hline 212 \end{array}$$

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M9: Grid Method

5

Long Multiplication

15 x 12 = 180

x	10	5
10	100	50
2	20	10

100 + 50 + 20 + 10 = 180

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M9a: Grid Method

5

Long Multiplication

43 x 65 = 2795

x	40	3
60	2400	180
5	200	15

2400 + 180 + 200 + 15 = 2795

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M9b: Grid Method

5

Long Multiplication

243 x 68 = 16,524

x	200	40	3	
60	12000	2400	180	= 14,580
8	1600	320	24	= 1,944

14580 + 1944 = 16,524

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M9c: Grid Method

5

Long Multiplication

203 x 68 = 13,804

x	200	0	3	
60	12000	0	180	= 12,180
8	1600	0	24	= 1,624

12180 + 1624 = 13,804

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M9d: Decimal Grid

5

Short Multiplication

$3.6 \times 4 = 14.4$

x	3	0.6
4	12	2.4

$12 + 2.4 = 14.4$

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M9e: Decimal Grid

6

Short Multiplication

47.2 x 3 = 141.6

x	40	7	0.2
3	120	21	0.6

120 + 21 + 0.6 = 141.6

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M9f: Grid Method

6

Short Multiplication

$$7.38 \times 6 = 44.28$$

x	7	0.3	0.08
6	42	1.8	0.48

$$42 + 1.8 + 0.48 = 44.28$$

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M9g: Grid Method

6

Long Multiplication

24.3 x 2.5 = 60.75

x	20	4	0.3	
2	40	8	0.6	= 48.6
0.5	10	2	0.15	= 12.15

48.6 + 12.15 = 60.75

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M10: Long Multiplication

5

Column

$$
\begin{array}{rr}
 & 15 \\
\times & 12 \\
\hline
 & 30 \quad (15 \times 2) \\
+ & 150 \quad (15 \times 10) \\
\hline
 & 180 \\
\hline
\end{array}
$$

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M10a: Long Multiplication

6

Column

$$
\begin{array}{rr}
 & 43 \\
\times & 65 \\
\hline
 & 215 \quad (43 \times 5) \\
+ & 2580 \quad (43 \times 60) \\
\hline
 & 2795 \\
\hline
\end{array}
$$

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M10b: Long Multiplication

6 Column

$$
\begin{array}{r}
243 \\
\times \quad 68 \\
\hline
1944 \quad (243 \times 8) \\
+\ 14580 \quad (243 \times 60) \\
\hline
16524 \\
\hline
\end{array}
$$

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M10c: Long Multiplication

6

Column

$$
\begin{array}{rr}
 & 203 \\
\times & 68 \\
\hline
 & 1624 \quad (203 \times 8) \\
+ & 12180 \quad (203 \times 60) \\
\hline
 & 13804 \\
\hline
\end{array}
$$

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M10d: Column Multiplication

5

10 1 . $\frac{1}{10}$

$$\begin{array}{r} 3.6 \\ \times \quad 4 \\ \hline 14.4 \\ \hline 2 \end{array}$$

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M10e: Column Multiplication

6

100	10	1	.	$\frac{1}{10}$
4	7	.	2	
×			3	
1	4	1	.	6
			2	

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M10f: Column Multiplication

6

10	1	.	$\frac{1}{10}$	$\frac{1}{100}$
	7	.	3	8
x	6			
4	4	.	2	8
	4		2	4

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M10g: Long Multiplication

Column Decimals

6

10	1	.	$\frac{1}{10}$	$\frac{1}{100}$
	24	.	3	
x		2	.	5
	12	.	1	5
+	48	.	60	
	60	.	75	

1 2 1

1

(24.3 x 0.5)

(24.3 x 2)

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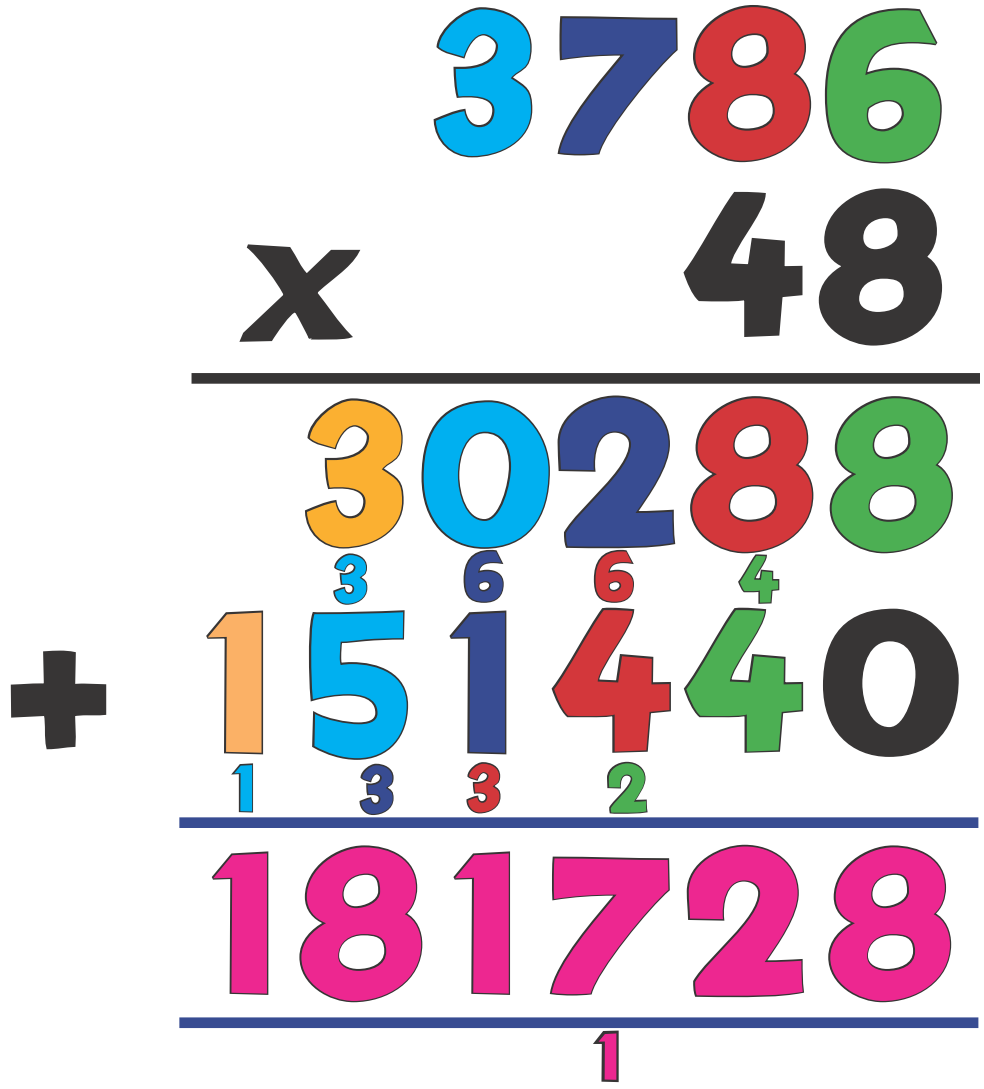
M10h: Long Multiplication

6 Column



(3786 x 8)

(3786 x 40)

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