Gr 3 - 7 Master Multiplication | Part 2 Memo

ALL Learners Must Continue Here [Page 1]

Question 1 | 2-digit numbers × 1-digit numbers [12 × 3 etc.]

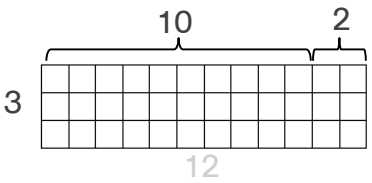
1. Study: 12 × 3 means "12 threes". It is equal to "3 twelves" or 3 × 12.

Study the vertical-column method:

Multiply the unit digits first.

12	(10 + 2)
× 3	(3)
6	(3 × 2)
+ 30	(3 × 10)
36	

Picture it:



Step 1: 12 = 10 + 2.

Step 2: Multiply both 2 and 10 **by** 3.

Step 3: Add to get the final answer.

2. Write in expanded form: a) 13 = 10 + 3 b) 16 = 10 + 6 c) 19 = 10 + 9

3. Complete using the vertical column method. Multiply the unit digits first.

a) 16 (10 + 6)	b) 14	c) 13	d) 13	e) 15
× 2 (2)	× 2	× 3	× 4	× 3
12 (2 × 6)	8	9	12	15
+ 20 (2 × 10)	+ 20	+ 30	+ 40	+ 30
32	28	39	52	45

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g) 17 (10 + 7)	h) 18	i) 13	j) 17	k) 15	l) 14
× 4 (4)	× 3	× 7	× 6	× 7	× 9
28 (4 × 7)	24	21	42	35	36
+ 40 (4 × 10)	+ 30	+ 70	+ 60	+ 70	+ 90
68	54	91	102	105	126

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Question 2 | ×20 to ×29: Part 1

1. Study: We are counting in twenties:

20 , 40 , 60 , 80 , 100, 120, 140 …

These numbers are multiples of 20.

The third multiple of 20 is 60:
- 20 + 20 + 20 = 60
- 3 twenties = 60
- **3 × 20 = 6**

2. Fill in the first ten multiples of 20. *Simply count in twenties.*

	1	2	3	4	5	6	7	8	9	10
× 20	20	40	60	80	100	120	140	160	180	200

3. Complete the table.

	Repeated addition	In words	Multiplication form	Answer
a)	20 + 20	2 twenties	2 × 20	40
b)	20 + 20 + 20	3 twenties	3 × 20	60
c)	20 + 20 + 20 + 20	4 twenties	4 × 20	80

4. Study: To multiply 4 by 20 think of 20 as 2 × 10:

$4 \times 20 = 4 \times 2 \times 10$
$= 8 \times 10$
$= 80$

5. Complete:

a) 3 × 2 = 6
3 × 20 = 60
20 × 3 = 60

b) 2 × 2 = 4
2 × 20 = 40
20 × 2 = 40

c) 4 × 2 = 8
4 × 20 = 80
20 × 4 = 80

d) 20 × 1 = 20
20 × 2 = 40
20 × 3 = 60

6. Write in expanded form: a) 23 = 20 + 3 b) 28 = 20 + 8 c) 22 = 20 + 2

7. Complete: Multiply the unit digits first.

a) 24	(20 + 4)	b) 23	c) 26	d) 26	e) 29
× 3	(3)	× 2	× 3	× 4	× 4
12	(3 × 4)	6	18	24	36
+ 60	(3 × 20)	+ 40	+ 60	+ 80	+ 80
72		46	78	104	116

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Question 3 | ×20 to ×29: Part 2

1. Fill in the multiples of 20 between 100 and 200. *Simply count in twenties.*

	5	6	7	8	9	10
× 20	100	120	140	160	180	200

2. Study: a) $20 + 20 + 20 + 20 + 20 = 100$

thus $\mathbf{5 \times 20 = 100}$

b) $\overbrace{20 + 20 + 20 + 20 + 20}^{100} + 20 = 120$

thus $\mathbf{6 \times 20 = 120}$

$5 \times 20 = \mathbf{5 \times 2} \times 10$
$= \mathbf{10} \times 10$
$= 100$

$6 \times 20 = \mathbf{6 \times 2} \times 10$
$= \mathbf{12} \times 10$
$= 120$

3. Complete:

a) $5 \times 2 = 10$
$5 \times 20 = 100$
$20 \times 5 = 100$

b) $6 \times 2 = 12$
$6 \times 20 = 120$
$20 \times 6 = 120$

c) $8 \times 2 = 16$
$8 \times 20 = 160$
$20 \times 8 = 160$

d) $9 \times 2 = 18$
$9 \times 20 = 180$
$20 \times 9 = 180$

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4. Complete: Multiply the unit digits first.

a) 23 (20 + 3)
× 6 (6)
18 (6 × 3)
+ 120 (6 × 20)
138

b) 23 × 5 = 15 + 100 = 115

c) 25 × 6 = 30 + 120 = 150

d) 21 × 9 = 9 + 180 = 189

e) 28 × 7 = 56 + 140 = 196

5. Complete:

a) 27 (20 + 7)
× 8 (8)
^{1}56 (8 × 7)
+ 160 (8 × 20)
216

b) 25 × 8 = ^{1}40 + 160 = 200

c) 23 × 9 = ^{1}27 + 180 = 207

d) 28 × 8 = ^{1}64 + 160 = 224

e) 29 × 9 = ^{1}81 + 180 = 261

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Question 4 | ×30 to ×90

1. Fill in the first ten multiples of 30. *Simply count in 30s.*

	1	2	3	4	5	6	7	8	9	10
× 30	30	60	90	120	150	180	210	240	270	300

2. Complete the table.

	Repeated addition	In words	Multiplication form	Answer
a)	30 + 30 + 30	3 thirties	3 × 30	90
b)	30 + 30	2 thirties	2 × 30	60
c)	30 + 30 + 30 + 30	4 thirties	4 × 30	120

3. Study:

a) $2 \times 30 = \mathbf{2} \times \mathbf{3} \times 10$
$= \mathbf{6} \times 10$
$= 60$

b) $8 \times 30 = \mathbf{8} \times \mathbf{3} \times 10$
$= \mathbf{24} \times 10$
$= 240$

4. Complete:

a) $4 \times 3 = 12$ b) $6 \times 3 = 12$ c) $9 \times 3 = 27$ d) $5 \times 30 = 150$

$4 \times 30 = 120$ $6 \times 30 = 120$ $9 \times 30 = 270$ $30 \times 5 = 150$

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5. Fill in the first ten multiples of 50. *Simply count in 50s.*

	1	2	3	4	5	6	7	8	9	10
× 50	50	100	150	200	250	300	350	400	450	500

6. Study:

a) $4 \times 50 = \mathbf{4} \times \mathbf{5} \times 10$
$= \mathbf{20} \times 10$
$= 200$

b) $5 \times 70 = \mathbf{5} \times \mathbf{7} \times 10$
$= \mathbf{35} \times 10$
$= 350$

7. Complete:

a) $3 \times 5 = 15$ b) $6 \times 4 = 24$ c) $5 \times 8 = 40$ d) $6 \times 7 = 42$

$3 \times 50 = 150$ $6 \times 40 = 240$ $5 \times 80 = 400$ $6 \times 70 = 420$

$30 \times 5 = 150$ $60 \times 4 = 240$ $50 \times 8 = 400$ $60 \times 7 = 420$

$5 \times 30 = 150$ $4 \times 60 = 240$ $8 \times 50 = 400$ $7 \times 60 = 420$

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Question 5 | 2-digit numbers × 1-digit numbers [45 × 7 etc.]

1. Write in expanded form: a) 34 = 30 + 4 b) 58 = 50 + 8 c) 92 = 90 + 2

2. Complete: Multiply the unit digits first.

a) 34 (30 + 4)	b) 34	c) 49	d) 35	e) 39
× 3 (3)	× 2	× 2	× 3	× 3
12 (3 × 4)	8	18	15	27
+ 90 (3 × 30)	+ 60	+ 80	+ 90	+ 90
102	68	98	105	117

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3. Complete: Multiply the unit digits first.

a) 46 (40 + 6)	b) 62	c) 56	d) 38	e) 98
× 3 (3)	× 3	× 4	× 7	× 6
18 (3 × 6)	6	24	56	48
+ 120 (3 × 40)	+ 180	+ 200	+ 210	+ 540
138	186	224	266	588

4. Complete: Multiply the unit digits first.

a) 37 (30 + 7)	b) 43	c) 69	d) 89	e) 79
× 6 (6)	× 7	× 6	× 7	× 8
^{1}42 (6 × 7)	^{1}21	^{1}54	^{1}63	^{1}72
+ 180 (6 × 30)	+ 280	+ 360	+ 560	+ 560
222	301	414	623	632

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Question 6 | Short Method: Part 1 [2-digit × 1-digit]

1. Complete:

a) 3 × 2 units = 6 units

b) 2 × 2 units = 4 units

c) 2 × 4 tens = 8 tens

d) 3 × 3 tens = 9 tens

2. Complete:

Multiply the unit digits first.

a)
T	U	
4	3	(4T + 3U)
×	2	(2U)
8	6	(8T + 6U)

b)
T	U
3	4
×	2
6	8

c)
T	U
2	4
×	2
4	8

d)
T	U
2	2
×	3
6	6

e)
T	U
4	4
×	2
8	8

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3. Write in expanded form:

a) 12 = 1T + 2U b) 24 = 2T + 4U c) 45 = 4T + 5U d) 72 = 7T + 2U

4. Complete:

a) 3 × 4 units = 12 units = 1 ten 2 units

b) 5 × 3 units = 15 units = 1 ten 5 units

c) 4 × 6 units = 24 units = 2 tens 4 units

d) 8 × 4 units = 32 units = 3 tens 2 units

5. Study:

Step 1:

T	U	
^{1}2	3	4 × 3 units
×	4	= 12 units
2		= 1 ten + 2 units

Step 2:

T	U	
^{1}2	3	4 × 2T = 8T
×	4	and
9	2	8T + 1T = 9T

6. Complete:

a)
T	U	
^{1}2	4	
×	4	
9	6	

b)
T	U
^{1}3	6
×	2
7	2

c)
T	U
^{1}2	6
×	3
7	8

d)
T	U
^{2}1	6
×	4
6	4

e)
T	U
^{2}2	7
×	3
8	1

f)
T	U
^{2}1	4
×	7
9	8

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Question 7a | Short Method: Part 2 [2-digit × 1-digit]

1. Study: a) 8 tens + 2 tens = 10 tens and 10 tens = 100 [1H]
   b) 8 tens + 4 tens = 12 tens and 12 tens = 120 [1H + 2T]

2. Complete: "T" stands for "tens".

a) 7T + 3T = 10T b) 9T + 3T = 12T c) 8T + 6T = 14T d) 7T + 6T = 13T

3. Study:

Step 1:

T U	
$^{2}26$	4 × 6 units
× 4	= 24 units
4	= 2 tens + 4 units

Step 2:

H T U	
$^{2}26$	4 × 2T = 8T
× 4	and
102	8T + 2T = 10T [100]

4. Complete:

H T U					
a) $^{3}14$	b) $^{2}39$	c) $^{2}25$	d) $^{6}19$	e) $^{2}37$	f) $^{7}18$
× 8	× 3	× 4	× 7	× 3	× 9
112	117	100	133	111	162

Step 2: 8T + 3T = 11T

Step 2: 9T + 2T = 11T

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Question 7b | Short Method: Part 3 [2-digit × 1-digit]

1. Complete: "T" stands for "tens" and "H" for "hundreds".

a) 3 × 4 tens = 12 tens = 1H + 2T

b) 4 × 6 tens = 24 tens = 2H + 4T

c) 7 × 5 tens = 35 tens = 3H + 5T

d) 8 × 9 tens = 72 tens = 7H + 2T

2. Complete:

H T U				
a) 42	b) 52	c) 63	d) 72	e) 81
× 3	× 2	× 3	× 3	× 9
126	104	189	216	729

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3. Complete: "T" stands for "tens".

a) 15T + 3T = 18T b) 26T + 2T = 28T c) 30T + 8T = 38T d) 63T + 5T = 68T

4. Study:

Step 1:

T U

$^{1}43$ × 6 = 8

6 × 3 units = 18 units = 1 ten + 8 units

Step 2:

H T U

$^{1}43$ × 6 = 258

6 × 4T = 24T and 24T + 1T = 25T [250]

5. Complete:

a) H T U	b)	c)	d)	e)	f)
$^{2}54$	$^{1}84$	$^{2}95$	$^{3}58$	$^{3}65$	$^{5}98$
× 6	× 3	× 4	× 4	× 7	× 7
324	252	380	232	455	686

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Question 8 | Short Method: Part 4 [2-digit × 1-digit]

1. Complete: "T" stands for "tens".

a) 18T + 3T = 21T b) 27T + 5T = 32T c) 39T + 5T = 44T d) 72T + 8T = 80T

2. Complete:

a) H T U	b)	c)	d)	e)	f)
$^{3}45$	$^{2}34$	$^{3}36$	$^{3}78$	$^{5}36$	$^{5}98$
× 7	× 6	× 6	× 4	× 9	× 7
315	204	216	312	324	686

g)	h)	i)	j)	k)	l)
$^{5}67$	$^{5}89$	$^{4}76$	$^{7}58$	$^{6}78$	$^{8}69$
× 8	× 6	× 7	× 9	× 8	× 9
536	534	532	522	624	621

Step 2: 8 × 6T = 48T and 48T + 5T = 53T

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Question 9 | Word Sums

1. One litre of juice costs R8.
   a) The cost of 2 litres of the juice = 2 × R8 = R16.
   b) The cost of 5 litres of the juice = 5 × R8 = R40.
   c) The cost of 12 litres of the juice = 12 × R8 = R96.

2. One bag of tomatoes cost R26.
   a) The cost of 2 bags of tomatoes = 2 × R26 = R52.
   b) The cost of 4 bags of tomatoes = 4 × R26 = R104.
   c) The cost of 9 bags of tomatoes = 9 × R26 = R234.

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3. The following items are sold at the second-hand toy shop.

   a) How much will 4 books cost? 4 × R15 = R60
   b) How much will 13 paintbrushes cost? 13 × R8 = R104
   c) How much will 8 teddy bears cost? 8 × R28 = R224
   d) How much change will I receive if I pay for 5 paintbrushes with a R50 note?
      R50 − (5 × R8) = R50 − R40 = R10
   e) How much will 3 soccer balls and 2 books cost in total?
      (3 × R35) + (2 × R15) = R105 + R30 = R135

4. Nkosi is on holiday for 7 days. He does 45 push-ups every day.

   How many push-ups does he do altogether? 45 × 7 = 315 push-ups.

5. A factory makes 78 toys in one day. How many toys are made in:
   a) 2 days? 2 × 78 toys = 156 toys b) 7 days? 7 × 78 toys = 546 toys

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