Mental Multiplication

10 Cool Strategies for Mental Multiplication

MM

MM1: Manipulate Calculation

16 x 3

(+2) (x2)

8 x 6 = 48

MM2: Factorising

16 x 3 = 48

(8 x 2 x 3)

8 x 6 = 48

MM3: Re-ordering

(9 x 2) x 5

18 x 5 = 90

(9 x 5) x 2

45 x 2 = 90

(2 x 5) x 9

10 x 9 = 90 *

MM4: Partitioning

15 x 5 = 75

50 (10 x 5) + 25 (5 x 5) = 75

MM5: Round & Adjust

49 x 3 = 147

(50 x 3) - (1 x 3)

150 - 3 = 147

MM6: Doubling

Double 17 = 34

20 + 14 = 34

MM7: Doubling Table Facts

8 x 6 = 48

(4 x 2)

4 x 6 = 24

↓ x 2

8 x 6 = 48

MM8: Doubling Up

17 x 4 = 68

Double 17 = 34 (17 x 2)

Double 34 = 68 (17 x 4)

Mental Multiplication

MM1 Manipulate Calculation
MM2 Factorising
MM3 Re-ordering
MM4 Partitioning
MM5 Round & Adjust
MM6 Doubling
MM7 Doubling Table Facts
MM8 Doubling Up
MM9 Multiply by ... then Halve
MM10 Jump

10 Cool Strategies for Mental Multiplication

MM1a: Manipulate Calculation

27 x 3

(+3) (x3)

9 x 9 = 81

MM2a: Factorising

27 x 3 = 81

(9 x 3 x 3)

9 x 9 = 81

MM3a: Re-ordering

(7 x 4) x 5

28 x 5 = 140

(7 x 5) x 4

35 x 4 = 140

(4 x 5) x 7

20 x 7 = 140 *

MM4a: Partitioning

37 x 4 = 148

120 (30 x 4) + 28 (7 x 4) = 148

MM5a: Round & Adjust

198 x 4 = 792

(200 x 4) - (2 x 4)

800 - 8 = 792

MM6a: Doubling

Double 37 = 74

60 + 14 = 74

MM7a: Doubling Table Facts

12 x 7 = 84

(6 x 2)

6 x 7 = 42

↓ x 2

12 x 7 = 84

MM8a: Doubling Up

36 x 8 = 288

Double 36 = 72 (36 x 2)

Double 72 = 144 (36 x 4)

Double 144 = 288 (36 x 8)

MM1b: Manipulate Calculation

45 x 14

(x2) (+2)

90 x 7 = 630

MM2b: Factorising

45 x 14 = 630

(45 x 2 x 7)

90 x 7 = 630

MM3b: Re-ordering

(9 x 8) x 6

72 x 6 = 432

(9 x 6) x 8

54 x 8 = 432 *

(8 x 6) x 9

48 x 9 = 432

MM4b: Partitioning

126 x 6 = 756

600 (100 x 6) + 120 (20 x 6) + 36 (6 x 6) = 756

MM5b: Round & Adjust

3.9 x 5 = 19.5

(4 x 5) - (0.1 x 5)

20 - 0.5 = 19.5

MM6b: Doubling

Double 78 = 156

140 + 16 = 156

MM7b: Doubling Table Facts

16 x 7 = 112

(8 x 2)

8 x 7 = 56

↓ x 2

16 x 7 = 112

MM8b: Doubling Up

125 x 16 = 2000

Double 125 = 250 (125 x 2)

Double 250 = 500 (125 x 4)

Double 500 = 1000 (125 x 8)

Double 1000 = 2000 (125 x 16)

MM1c: Manipulate Calculation

36 x 25

(÷4) (x4)

9 x 100 = 900

MM2c: Factorising

36 x 25 = 900

(9 x 4 x 25)

9 x 100 = 900

MM4c: Partitioning

4.3 x 8 = 34.4

32 (4 x 8) + 2.4 (0.3 x 8) = 34.4

MM5c: Round & Adjust

£5.99 x 6 = £35.94

(£6 x 6) - (1p x 6)

£36 - 6p = £35.94

MM6c: Doubling

Double 340 = 680

600 + 80 = 680

MM7c: Doubling Table Facts

22 x 12 = 264

(11 x 2)

11 x 12 = 132

↓ x 2

22 x 12 = 264

MM1d: Manipulate Calculation

32 x 15

(x5) (÷5)

160 x 3 = 480

MM2d: Factorising

32 x 15 = 480

(32 x 5 x 3)

160 x 3 = 480

MM4d: Partitioning

2.16 x 3 = 6.48

6 (2 x 3) + 0.3 (0.1 x 3) + 0.18 (0.06 x 3) = 6.48

MM6d: Doubling

Double 480 = 960

800 + 160 = 960

MM1e: Manipulate Calculation

26 x 32

(x4) (÷4)

104 x 8 = 832

MM2e: Factorising

26 x 32 = 832

(26 x 4 x 8)

104 x 8 = 832

MM6e: Doubling

Double 278 = 556

400 + 140 + 16 = 556

MM1f: Manipulate Calculation

52 x 24

(x4) (÷4)

208 x 6 = 1248

MM2f: Factorising

52 x 24 = 1248

(52 x 4 x 6)

208 x 6 = 1248

MM6f: Doubling

Double 768 = 1536

1400 + 120 + 16 = 1536

MM9: Mult by 1,000 then Halve

86 x 5 = 430

86 x 10 = 860

860 ÷ 2 = 430

MM10: Jump!

	1000	100	10	1
x100	3	4	0	0
x10		3	4	0
			3	4

MM6g: Doubling

Double 3.7 = 7.4

6 + 1.4 = 7.4

MM9a: Mult by 10,000 then Halve

56 x 25 = 1400

56 x 100 = 5600

5600 ÷ 2 = 2800

2800 ÷ 2 = 1400

MM10a: Jump!

x1000	6	3	4	0	0
x100		6	3	4	0
x10			6	3	4
				6	3.4

Progression Overviews

Sense of Number Written Strategies VCP © Sense of Number 2018

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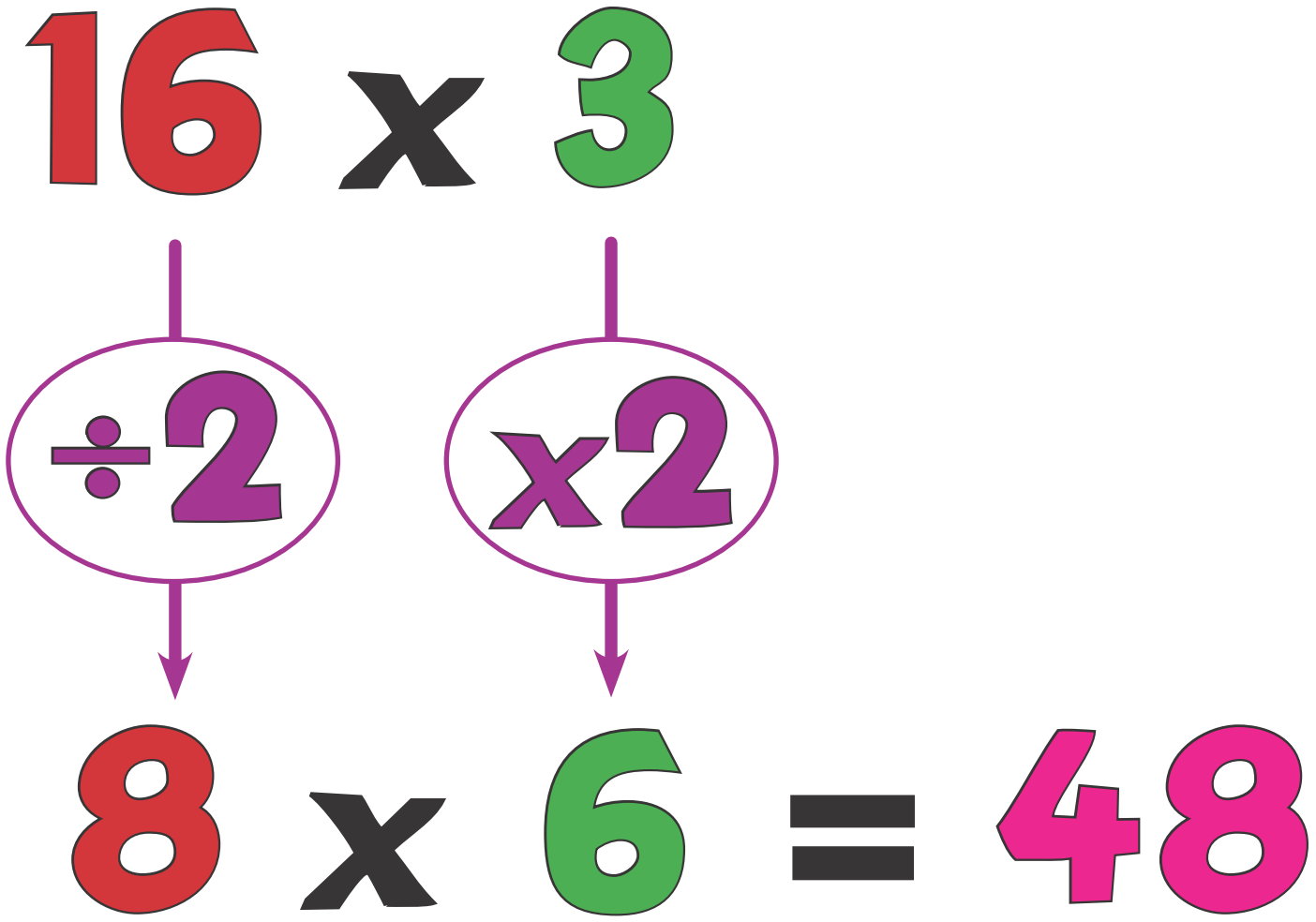
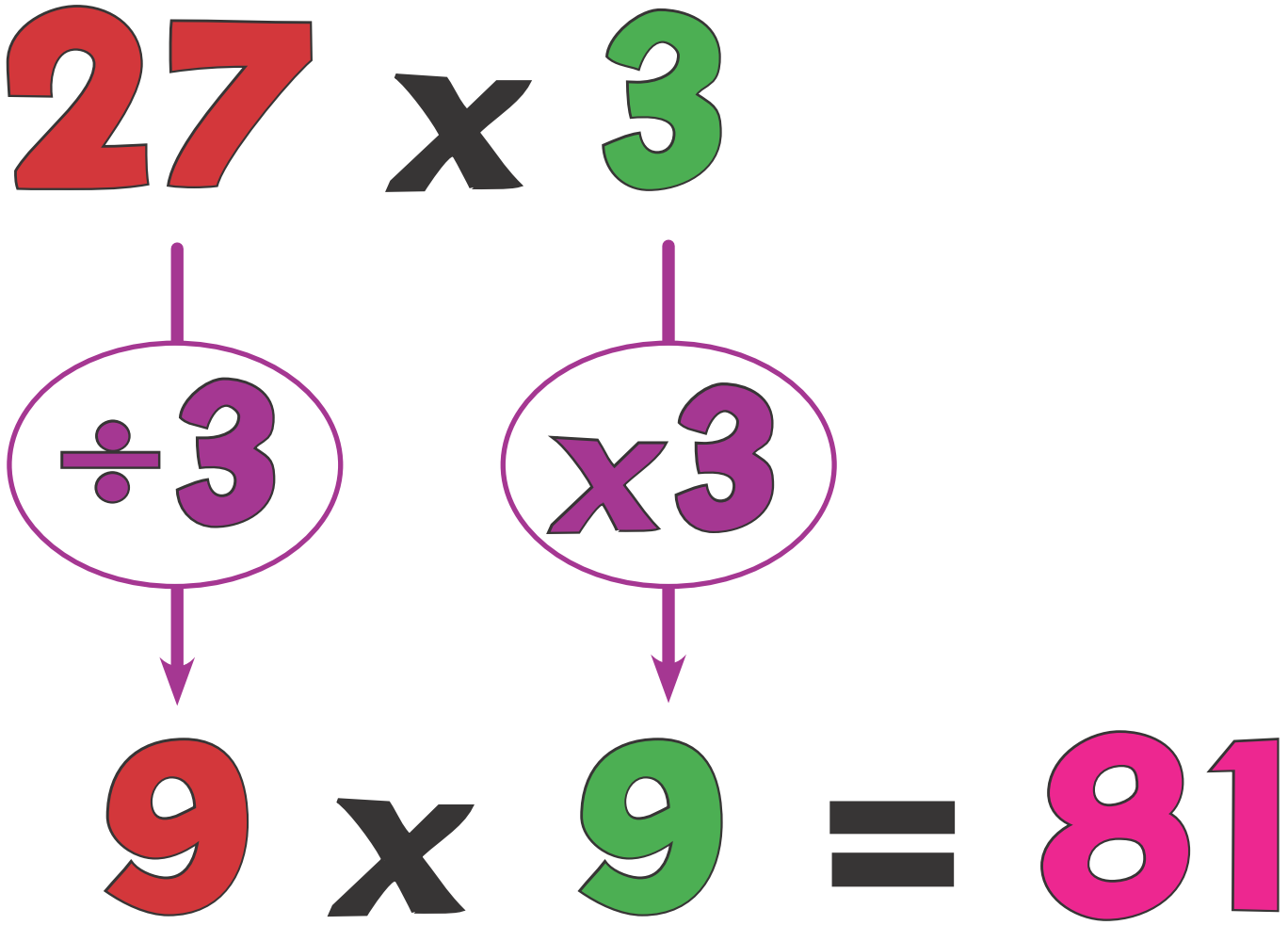
MM1: Manipulate Calculation

5



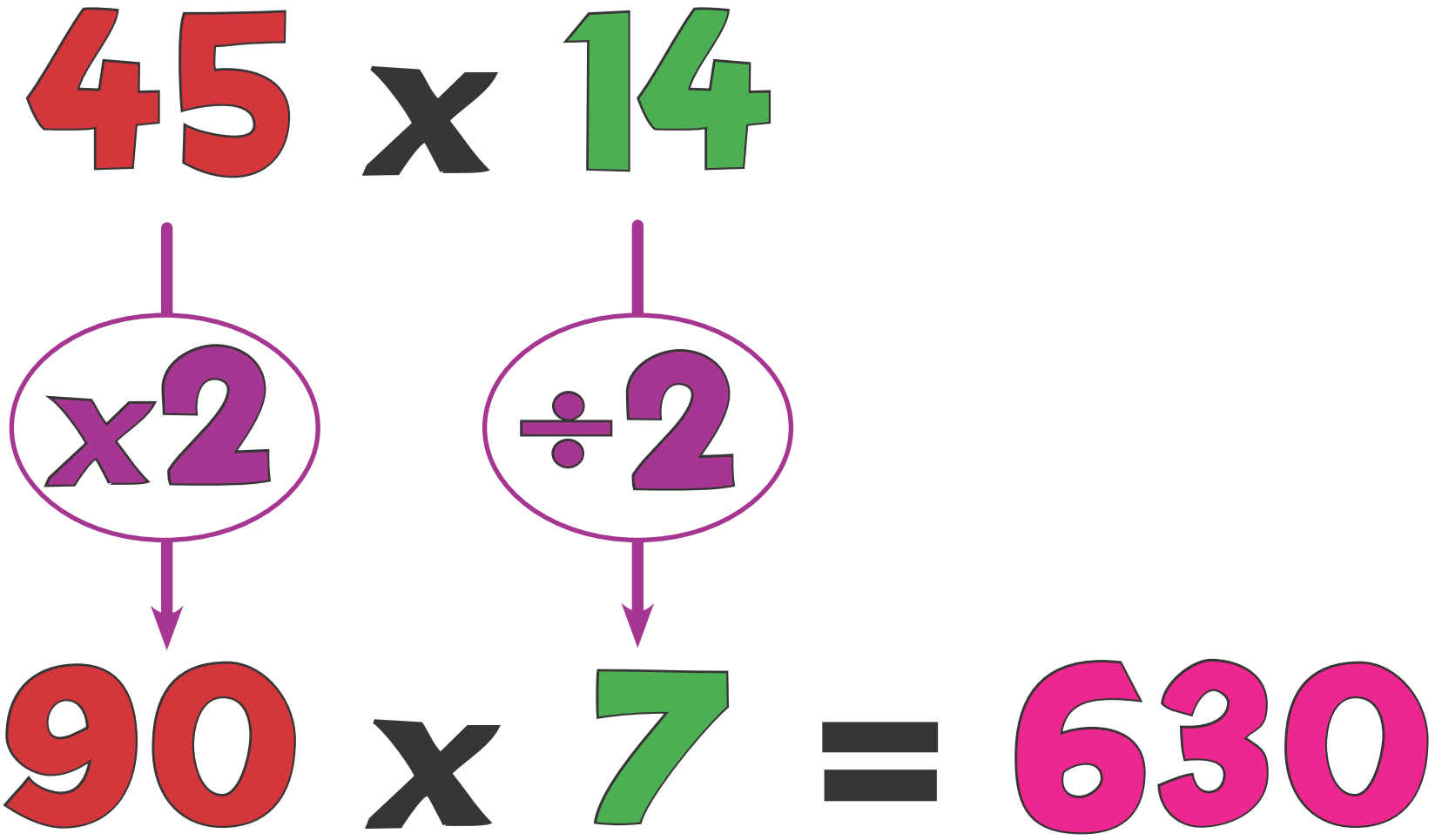
MM1a: Manipulate Calculation

5



MM1b: Manipulate Calculation

5



MM1c: Manipulate Calculation

5/6

36 x 25

÷4 ↓ ↓ x4

9 x 100 = 900

MM1d: Manipulate Calculation

6

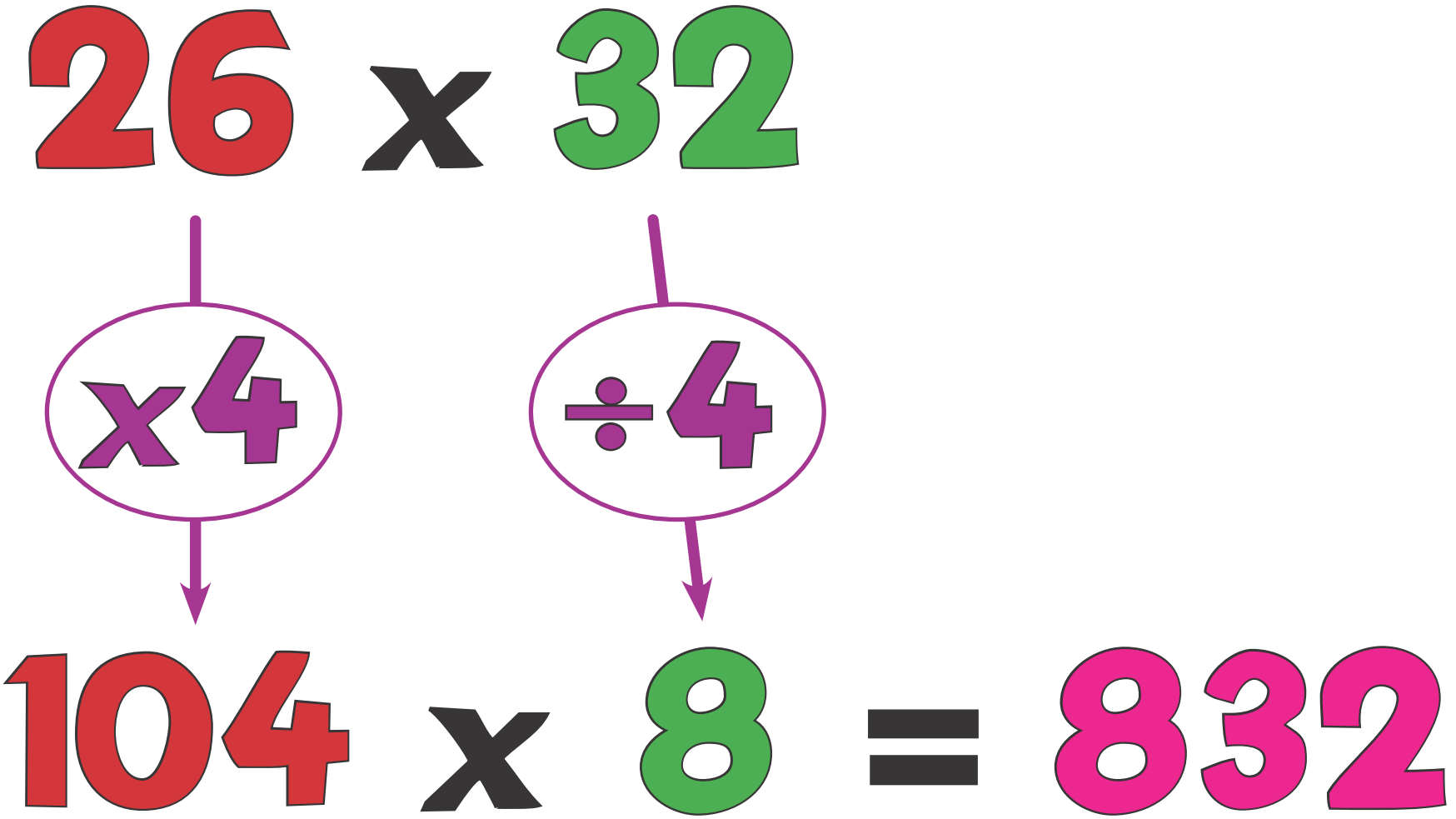
$$32 \times 15$$

$\times 5$ $\div 5$

$$160 \times 3 = 480$$

MM1e: Manipulate Calculation

6



MM1f: Manipulate Calculation

6

$$52 \times 24$$

$\times 4$ $\div 4$

$$208 \times 6 = 1248$$

MM2: Factorising

4

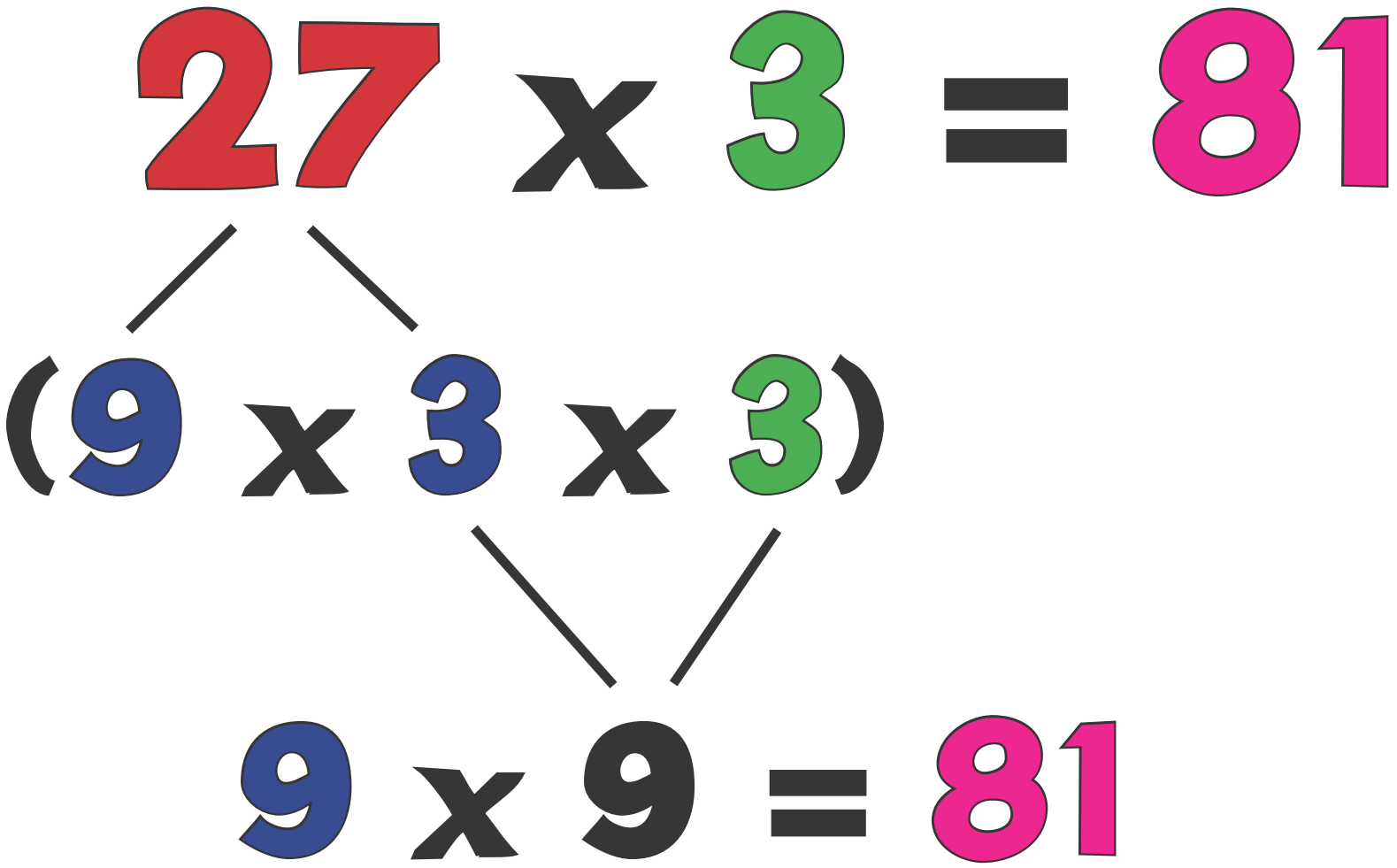
$$16 \times 3 = 48$$

$$(8 \times 2 \times 3)$$

$$8 \times 6 = 48$$

MM2a: Factorising

4



MM2b: Factorising

5

$45 \times 14 = 630$

$(45 \times 2 \times 7)$

$90 \times 7 = 630$

MM2c: Factorising

5/6

$$36 \times 25 = 900$$

$$(9 \times 4 \times 25)$$

$$9 \times 100 = 900$$

MM2d: Factorising

6

$$32 \times 15 = 480$$

$$(32 \times 5 \times 3)$$

$$160 \times 3 = 480$$

MM2e: Factorising

6

$$26 \times 32 = 832$$

$$(26 \times 4 \times 8)$$

$$104 \times 8 = 832$$

MM2f: Factorising

6

$52 \times 24 = 1248$

$(52 \times 4 \times 6)$

$208 \times 6 = 1248$

MM3: Re-ordering

5

$(9 \times 2) \times 5$

$18 \times 5 = 90$

$(9 \times 5) \times 2$

$45 \times 2 = 90$

$(2 \times 5) \times 9$

$10 \times 9 = 90$ *

MM3a: Re-ordering

5/6

$(7 \times 4) \times 5$

$28 \times 5 = 140$

$(7 \times 5) \times 4$

$35 \times 4 = 140$

$(4 \times 5) \times 7$

$20 \times 7 = 140$ *

MM3b: Re-ordering

6

$(9 \times 8) \times 6$

$72 \times 6 = 432$

$(9 \times 6) \times 8$

$54 \times 8 = 432$ *

$(8 \times 6) \times 9$

$48 \times 9 = 432$

MM4: Partitioning

4

15 x 5 = 75

50 + 25 = 75

(10 x 5) (5 x 5)

MM4a: Partitioning

4/5

$$37 \times 4 = 148$$

$$120 + 28 = 148$$

(30 x 4) (7 x 4)

MM4b: Partitioning

5

126 x 6 = 756

600 + 120 + 36 = 756

(100 x 6) (20 x 6) (6 x 6)

MM4c: Partitioning

6

$$4.3 \times 8 = 34.4$$

$$32 + 2.4 = 34.4$$

(4×8) (0.3×8)

MM4d: Partitioning

6

2.16 x 3 = 6.48

6 + 0.3 + 0.18 = 6.48

(2 x 3) (0.1 x 3) (0.06 x 3)

MM5: Round & Adjust

4

$$49 \times 3 = 147$$

$$(50 \times 3) - (1 \times 3)$$

$$150 - 3 = 147$$

MM5a: Round & Adjust

5

198 x 4 = 792

(200 x 4) - (2 x 4)

800 - 8 = 792

MM5b: Round & Adjust

$$3.9 \times 5 = 19.5$$

$$(4 \times 5) - (0.1 \times 5)$$

$$20 - 0.5 = 19.5$$

MM5c: Round & Adjust

6

£5.99 x 6 = £35.94

(£6 x 6) - (1p x 6)

£36 - 6p = £35.94

MM6: Doubling

2

20 + 14 = 34

Double 17 = 34

(15 + 2)

30 + 4 = 34

MM6a: Doubling

3

60 + 14 = 74

Double 37 = 74

(35 + 2)

70 + 4 = 74

MM6b: Doubling

4

$$140 + 16 = 156$$

Double 78 = 156

(75 + 3)

$$150 + 6 = 156$$

MM6c: Doubling

4

Double 340 = 680

600 + 80 = 680

MM6d: Doubling

4/5

800 + 160 = 960

Double 480 = 960

(450 + 30)

900 + 60 = 960

MM6e: Doubling

5

400 + 140 + 16 = 556

Double 278 = 556

(250 + 28)

500 + 28 = 556

MM6f: Doubling

5/6

1400 + 120 + 16 = 1536

Double 768 = 1536

(750 + 18)

1500 + 36 = 1536

MM6g: Doubling

6

Double 3.7 = 7.4

6 + 1.4 = 7.4

MM7: Doubling Table Facts

3

$8 \times 6 = 48$

(4 x 2)

$4 \times 6 = 24$

↓ ↓ x 2

$8 \times 6 = 48$

MM7a: Doubling Table Facts

4

$$12 \times 7 = 84$$

(6 x 2)

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8 x 7 = 56

↓ ↓ x 2

16 x 7 = 112

MM7c: Doubling Table Facts

6

$$22 \times 12 = 264$$

(11 x 2)

$$11 \times 12 = 132$$

↓ ↓ x 2

$$22 \times 12 = 264$$

MM8: Doubling Up

3/4

17 x 4 = 68

Double 17 = 34 (17 x 2)

Double 34 = 68 (17 x 4)

MM8a: Doubling Up

5

36 x 8 = 288

Double 36 = 72 (36 x 2)

Double 72 = 144 (36 x 4)

Double 144 = 288 (36 x 8)

MM8b: Doubling Up

6

125 x 16 = 2000

Double 125 = 250 (125 x 2)

Double 250 = 500 (125 x 4)

Double 500 = 1000 (125 x 8)

Double 1000 = 2000 (125 x 16)

MM9: Mult by 10, 100 & 1000 then Halve

5

$$86 \times 5 = 430$$

$$86 \times 10 = 860$$

$$860 \div 2 = 430$$

MM9a: Mult by 10, 100 & 1000 then Halve

6

$$56 \times 25 = 1400$$

$$56 \times 100 = 5600$$

$$5600 \div 2 = 2800$$

$$2800 \div 2 = 1400$$

MM10: Jump!

3/4

x100

x10

1000	100	10	1
3	4	0	0
	3	4	0
		3	4

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MM10a: Jump!

5/6

x1000

x100

x10