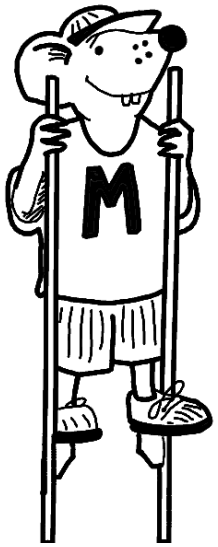


Booster Pages KS2

Missing Digits

Non-Calculator

Level 3/4

Number of practice sheets: 9

MathSphere

© MathSphere www.mathsphere.co.uk

© MathSphere www.mathsphere.co.uk

Notes

Techniques to be used in this work include working a sum backwards and using rules of multiplication to find missing numbers.

Eg if a missing digit must be multiplied by 7 and the answer ends in 1, the missing digit must be 3 (7 × 3 = 2**1**).

Children need to appreciate the need to bring many resources to this type of problem.

Although this type of problem does not appear too often on test papers, these questions are certainly worth practising as they focus on many techniques that may be used elsewhere in number work.

Some questions are written horizontally eg 4□ 7 – 236 =□51.
In finding the missing digits children may prefer to rewrite the sum in vertical form.

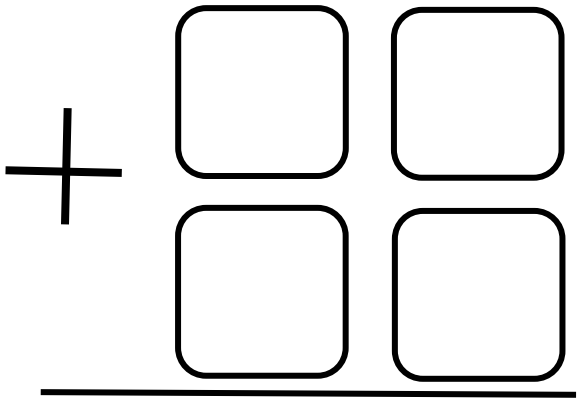
The first worksheet is printed large so that you may use it on an OHP or interactive whiteboard for demonstration purposes.

© MathSphere www.mathsphere.co.uk

1.

2	5	3	7

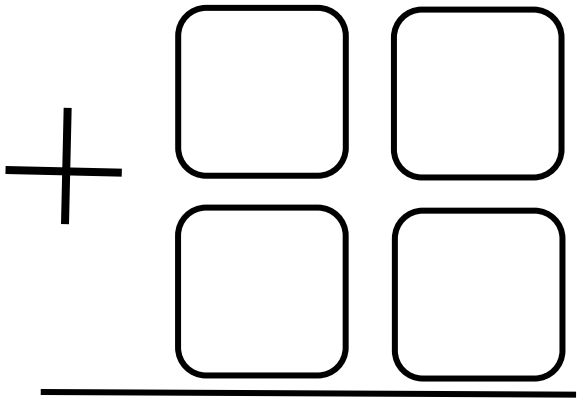
Use all the number cards in the calculation below to make a number **MORE than 120**.



2.

4	1	5	9

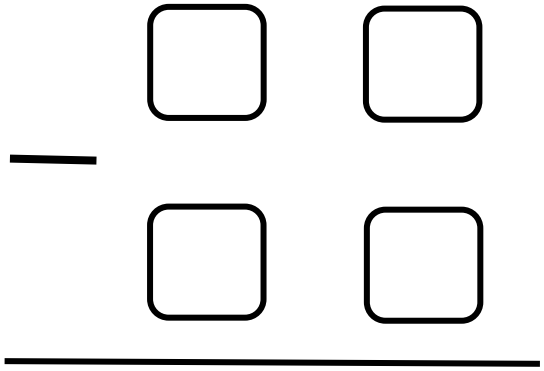
Use all the number cards in the calculation below to make a number **MORE than 100.**



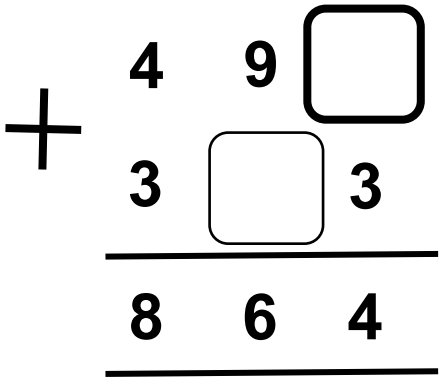
© MathSphere www.mathsphere.co.uk

1.

Use all the number cards in the calculation below to make a number **LESS than 44.**



2. Write the missing digits in the boxes.



Explain how you found the number in the **bold** box:

© MathSphere www.mathsphere.co.uk

1. Sam is adding up the number of comics he bought each day. What is the missing number?

Sunday	3
Monday	1
Tuesday	☐
Wednesday	3
Thursday	2
Friday	2
Saturday	2
TOTAL	16

2. Write the missing numbers in the boxes in each calculation.

a)

$$\begin{array}{r} 2\ 3\ \square \\ +\ 4\ \square\ 8 \\ \hline 6\ 5\ 5 \end{array}$$

b)

$$\begin{array}{r} 2\ \square\ 6 \\ +\ \square\ 1\ 9 \\ \hline 8\ 0\ 5 \end{array}$$

c)

$$\begin{array}{r} 4\ 7\ 3 \\ +\ \square\ 1\ 9 \\ \hline 9\ \square\ 2 \end{array}$$

d)

$$\begin{array}{r} \square\ 7\ 7 \\ +\ 2\ 8\ \square \\ \hline 9\ \square\ 2 \end{array}$$

© MathSphere www.mathsphere.co.uk

1. Write the missing numbers in the boxes in each calculation.

a)

$$\begin{array}{r} \square\ 8\ 2 \\ -\ 3\ \square\ 8 \\ \hline 6\ 5\ 4 \end{array}$$

b)

$$\begin{array}{r} 5\ 0\ 6 \\ -\ 2\ 9\ \square \\ \hline 2\ \square\ 5 \end{array}$$

c)

$$\begin{array}{r} 4\ 7\ 3 \\ -\ \square\ 1\ 9 \\ \hline 2\ \square\ \square \end{array}$$

d)

$$\begin{array}{r} 7\ \square\ 7 \\ -\ 2\ 8\ \square \\ \hline \square\ 9\ 2 \end{array}$$

2. Explain why the missing digit must be 8

$$\begin{array}{r} 5\ 4\ 6 \\ +\ 2\ \square\ 9 \\ \hline 8\ 3\ 5 \end{array}$$

© MathSphere www.mathsphere.co.uk

Why does Mickey Mouse have two Ms in his name?

Because if he didn't he'd be Ickey Ouse! Ha! Ha!

Stop the jokes!

1. Write in the missing digits:

a) 2 ☐ 1 + 3 7 ☐ = 6 1 7

b) ☐ 4 7 + 3 ☐ 9 = 7 5 6

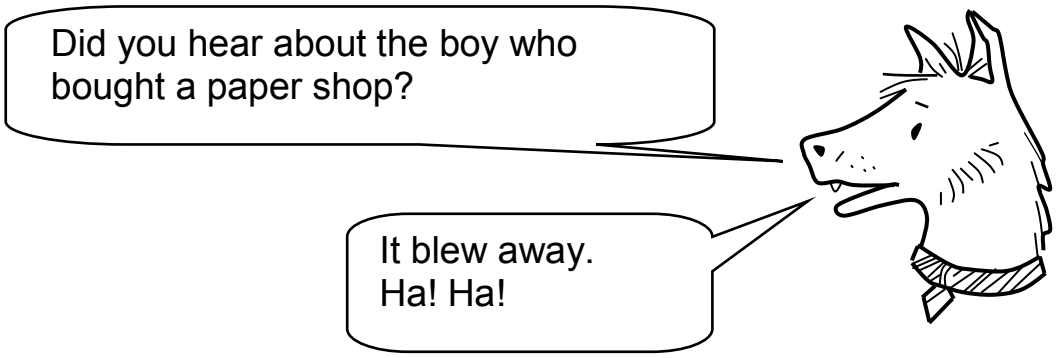
c) ☐ 7 9 + 1 8 ☐ = 4 6 4

d) ☐ 0 2 + 4 ☐ 6 = 7 9 8

e) 2 ☐ 8 + 3 6 ☐ = 6 5 3

f) 2 9 ☐ + ☐ 9 9 = 7 9 8

© MathSphere www.mathsphere.co.uk



Okay, that's enough jokes!

1. Write in the missing digits:

a) 4 ☐ 7 − 2 3 6 = ☐ 5 1

b) 7 ☐ 9 − ☐ 4 6 = 4 7 3

c) ☐ 2 1 − 1 2 5 = 3 ☐ 6

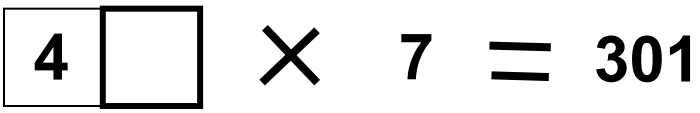
d) ☐ 8 9 − 3 ☐ 2 = 1 1 7

e) 6 6 ☐ − 2 8 ☐ = 3 8 9

f) 4 0 ☐ − ☐ 1 3 = 1 8 9

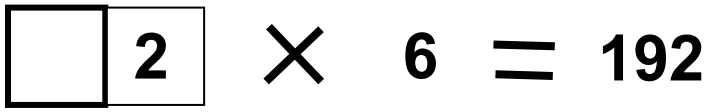
© MathSphere www.mathsphere.co.uk

1. Write in the missing digit:



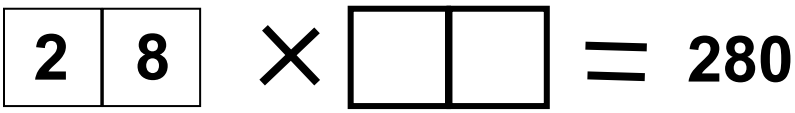
How did you calculate the missing digit?

2. Write in the missing digit:



Why must the missing digit be **less than 5**?

3. Write in the missing digits:



What happens to a number when you multiply by 10?

© MathSphere Pwww.mathsphere.co.uk

1. Write in the missing digits:

$\square 2 \times 5 = 60$

$2 \square \times 3 = 72$

2. Answer the questions carefully.

a) $1 \square \times 5 = 75$

Explain how you worked out which number goes in the empty box.

b) $\square 3 \times 6 = 138$

Explain how you worked out which number goes in the empty box.

© MathSphere www.mathsphere.co.uk

1. Write in the missing digits in these division questions.
None of the sums has a remainder.

a) $3\overline{)\square 2} = 14$

b) $4\overline{)3\square} = 8$

c) $\square\overline{)60} = 12$

d) $7\overline{)77} = 1\square$

e) $7\overline{)\square 4} = 12$

f) $4\overline{)96} = 2\square$

g) $5\overline{)\square 0} = 2$

h) $6\overline{)\square 4} = 14$

i) $9\overline{)81} = \square 9$

2. Complete these magic squares. In each square the rows, columns and diagonals add up to the same number.

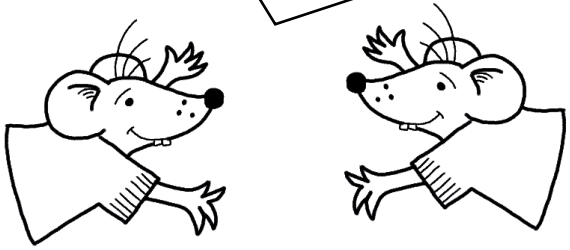
6	1	8
	5	

		7
6		2
		3

2	6	10
7		

Nothing like a bit of magic to finish a day's work, we always say!

Two digits in this box. Only Maths Rats can do this!



© MathSphere www.mathsphere.co.uk

Answers

Page 3

1. 53 + 72 **OR** 52 + 73

2. One of the numbers must begin with a 9, Eg. 91 + 45
NB 41 + 59 =100 (not **more** than 100)

Page 4

1. Any combination that works Eg. 63 – 21.
Accept a negative answer Eg 21 – 62, but check child understands what he/she has done.

2. 49**1** + 3**7**3 = 864

Page 5

1. Tuesday 3

2. a) 23**7** + 4**1**8 = 655 **b)** 2**8**6 + **5**19 = 805
c) 473 + **5**19 = 9**9**2 **d)** **6**77 + 28**5** = 9**6**2

Page 6

1. a) **9**82 - 3**2**8 = 654 **b)** 506 - 29**1** = 2**1**5
c) 473 - **2**19 = 2**54** **d)** 7**7**7 - 28**5** = **4**92

2. 6 + 9 = 15 Carry the 1 into the 10s column.
4 + 1 = 5 **8** + 5 = 13

Page 7

1. a) 2**4**1 + 37**6** = 617 b) **4**47 + 3**0**9 = 756
c) **2**79 + 18**5** = 464 d) **3**02 + 4**9**6 = 798
e) 2**8**8 + 36**5** = 653 f) 29**9** + **4**99 = 798

Page 8

1. a) 4**8**7 – 236 = **2**51 b) 7**1**9 – **2**46 = 473
c) **5**21 – 125 = 3**9**6 d) **4**89 – 3**7**2 = 117
e) 66**9** – 28**0** = 389 f) 40**2** – **2**13 = 189

© MathSphere www.mathsphere.co.uk

Answers (Contd)

Page 9

1. 4**3** × 7 = 301
Either a) 301 ÷ 7 = 43 **Or** b) 3 is the only digit that gives a number ending in 1 when multiplied by 7 (3 × 7 = 2**1**)

2. **3**2 × 6 = 192
If it were 4 or more, the answer would be greater than 240.
192 could not be the answer.

3. 28 × 10 = 280
The number moves one place to the left.
Do not accept "add a nought" – this does not work for decimals
eg 3.6 × 10 ≠ 3.60

Page 10

1. **1**2 × 6 = 60
2**4** × 3 = 72

2. **a)** 1**5** × 5 = 75
Either a) 75 ÷ 5 = 15 **Or** b) 5 × 5 is the only combination possible in this sum where the answer ends in a 5.

b) **2**3 × 6 = 138
Either 138 ÷ 6 = 23 **Or** 6 × 3 = 18 (ends in 8) and 6 × 2 = 12 plus 1 to carry = 13.

Page 11

1. a) **4**2 **b)** 3**2** **c)** **5** **d)** 1**1** **e)** **8**4 **f)** 2**4** **g)** **1**0 **h)** **8**4
i) **0**9 (or no digit necessary)

2.

6 1 8	**5 0** 7	**9 4 5**
7 5 **3**	6 **4** 2	2 6 10
2 9 4	**1 8** 3	7 **8 3**