



MATHEMATICS



N.S. Yr. 6 P.59

**Know multiplication facts by heart.
Relationship to division. Double and halve.**

Equipment

Paper, pencil,

MathSphere

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Concepts

Children should know and use the following vocabulary: *double, twice, half, halve, whole, divide by, divide into.*

Children should have a good working knowledge of all table facts up to 10×10 .

They should also know them 'backwards', eg. know how many eights make 56.

On the MathSphere CD there are pages of practice multiplication tables with the opportunity to time how long it takes to complete a table and then try for improvement in speed and accuracy.

Children should know all the squares of number up to 12×12 (knowing also the square of 13 is very useful in mathematics in later years and could well be learnt with the other square numbers now).

Using the knowledge of the above paragraph, children should then be able to quickly calculate the square of multiples of 10 up to 100, eg. 30^2 and 70^2 .

They should be able to answer a whole range of mental questions such as:

- What are seven sixes?
- How many nines are there in 54 ?
- What is 4 times 9 ?
- Multiply 7 by 5.
- What is 9 multiplied by 0.6 ?
- What is 7 multiplied by 0 ?
- What is 27 divided by 3 ?
- What is 64 shared between eight people?
- What is one thirtieth of 240 ?

Children should understand that halving is the inverse (opposite) operation to multiplication by 2.

They should be able to answer a range of questions on doubling and halving involving decimals, fractions and simple units such as money and centimetres.

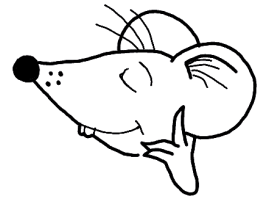
Knowing your tables is really, really, really important.



Yes, really, really, really important!!!!!!



Extremely important, in fact.



Take this opportunity to see which table facts you know really well.

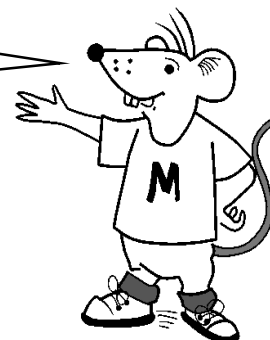
Fill in all the table facts you know without straining your brain.

×	7	3	8	1	10	6	2	9	4	5
3										
7										
2										
10										
5										
1										
9										
6										
4										
8										

Now write down all the ones you are not sure about and ask someone to test you until you know them all.

Here are some questions about the table square.

How quickly can you answer them?



1.

a. How many eights are there in 40 ?

b. How many sixes are there in 24 ?

c. How many fives are there in 35 ?

d. How many fours are there in 36 ?

e. How many threes are there in 33 ?

f. How many fives are there in 45 ?

g. How many sevens are there in 56 ?

2. You should learn the squares of all the numbers up to **13**. Try these:

a. $0^2 =$

b. $1^2 =$

c. $2^2 =$

d. $3^2 =$

e. $4^2 =$

f. $5^2 =$

g. $6^2 =$

h. $7^2 =$

i. $8^2 =$

j. $9^2 =$

k. $10^2 =$

l. $11^2 =$

m. $12^2 =$

n. $13^2 =$

3. Use the square numbers that you know to work out these:

Eg. $30^2 = 30 \times 30 = 3 \times 3 \times 10 \times 10$
 $= 9 \times 100 = 900$

Amazing, really!



a. $20^2 =$

b. $50^2 =$

c. $30^2 =$

d. $40^2 =$

e. $70^2 =$

f. $60^2 =$

g. $10^2 =$

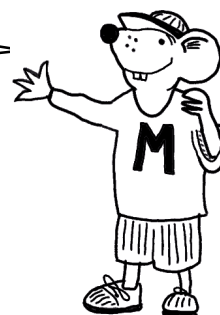
h. $80^2 =$

i. $90^2 =$

j. $100^2 =$

Here are some more questions
about the table square.

How quickly can you answer them?



1.
 - a. How many sixes are there in 36 ?
 - b. How many threes are there in 27 ?
 - c. How many sevens are there in 42 ?
 - d. How many twos are there in 18 ?
 - e. How many fours are there in 28 ?
 - f. How many eights are there in 48 ?
 - g. How many fives are there in 45 ?

2. You should learn the squares of all the numbers up to **13**. Try these:

a. $6^2 =$	b. $13^2 =$	c. $1^2 =$	d. $4^2 =$	e. $11^2 =$	f. $5^2 =$
g. $7^2 =$	h. $0^2 =$	i. $9^2 =$	j. $2^2 =$	k. $3^2 =$	l. $12^2 =$
m. $8^2 =$	n. $10^2 =$				

3. Use the square numbers that you know to work out these:

Eg. $40^2 = 40 \times 40 = 4 \times 4 \times 10 \times 10$
 $= 16 \times 100 = 1\,600$

Amazing, really!



a. $70^2 =$	b. $40^2 =$	c. $90^2 =$	d. $20^2 =$	e. $30^2 =$	f. $80^2 =$
g. $60^2 =$	h. $50^2 =$	i. $100^2 =$	j. $10^2 =$		

Here are some questions about the table square. Answer them as quickly and accurately as possible. Can you beat your friends and still get them all right?

1.

- | | |
|--|--|
| a. What are nine sevens? | b. How many sixes are there in 18 ? |
| c. What is eight times seven? | d. What is five multiplied by nine? |
| e. What are three sixes? | f. What is 48 divided by 8 ? |
| g. What is 7 multiplied by 5? | h. How many fours are there in 28 ? |
| i. How many sixes are there in 60 ? | j. Multiply 9 by 5. |

2.

- | | |
|---|--|
| a. What are eight fours? | b. How many fives are there in 35 ? |
| c. What is seven times seven? | d. What is 7 multiplied by 8? |
| e. What are six nines? | f. What is 32 divided by 8 ? |
| g. What is 9 multiplied by 7? | h. How many 3s are there in 27 ? |
| i. How many eights are there in 72 ? | j. Multiply 8 by 8. |

Here are some harder questions.

You will have to
think hard to answer
these!

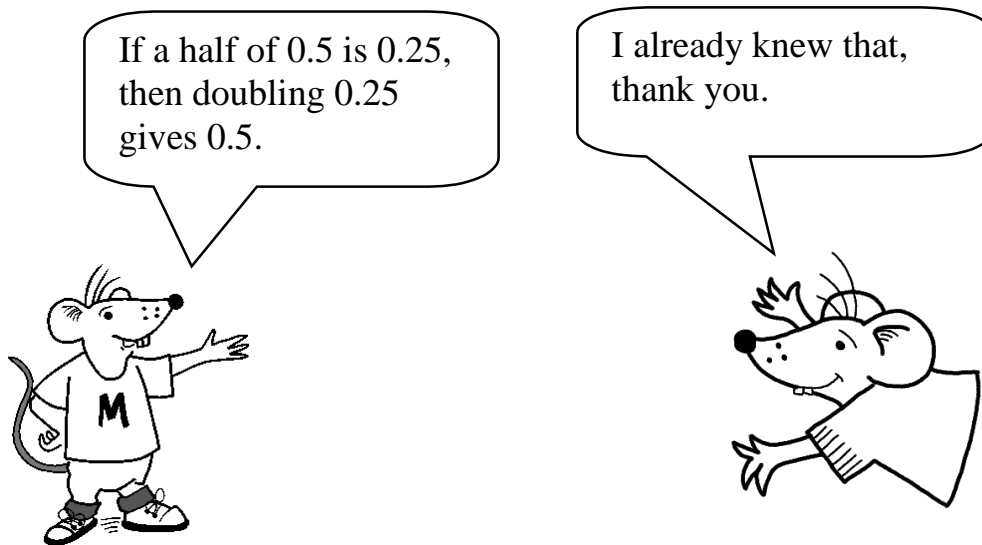


3.

- | | |
|---|--|
| a. What is 0.9 multiplied by 6? | b. What is 0.6×7 ? |
| c. Multiply 0.4 by 0.7 | d. What is 8 multiplied by 0.7 ? |
| e. Divide 3.2 by 8 | f. Divide 63 by 9 |
| g. What is $\frac{1}{10}$ of 480 ? | h. What is 440 shared between 8 ? |
| i. Divide 4 into 72 | j. Multiply 0.7 by 3. |

4.

- | | |
|--|--|
| a. What is 7^2 ? | b. What is the square root of 144 ? |
| c. What is 13^2 ? | d. What is the square root of 121 ? |
| e. What is half the square root of 64 ? | f. What is 8^2 ? |
| g. What is the square root of 81 ? | h. What is 10^2 ? |
| i. What is 12^2 ? | j. What is 9^2 ? |



1. Write the opposite statements to the ones in the questions.
 Eg. in **a.** the opposite is "**Double 13 is 26**".

- | | |
|-----------------------------|---------------------------------------|
| a. A half of 26 is 13 | b. $\frac{1}{2}$ of 2.4 is 1.2 |
| c. A half of 34.8 is 17.4 | d. $\frac{1}{2}$ of 99 is 49.5 |
| e. A half of 2 376 is 1 188 | f. $\frac{1}{2}$ of £26.78 is £13.39 |
| g. A half of 0.034 is 0.017 | h. $\frac{1}{2}$ of 45.89m is 22.945m |



2. See how quickly you can **double** all these numbers:

- | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|
| a. 34 | b. 27 | c. 56 | d. 47 | e. 63 | f. 52 | g. 75 | h. 49 |
| i. 23 | j. 36 | k. 41 | l. 99 | m. 73 | n. 81 | o. 95 | p. 38 |
| q. 93 | r. 76 | s. 48 | t. 64 | u. 72 | v. 10 | w. 97 | x. 53 |

3. See how quickly you can **double** all these numbers:

- | | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|
| a. 7.6 | b. 4.5 | c. 9.3 | d. 2.5 | e. 8.5 | f. 6.1 | g. 6.4 | h. 8.8 |
| i. 3.4 | j. 6.2 | k. 5.1 | l. 1.9 | m. 4.9 | n. 5.4 | o. 3.2 | p. 1.5 |
| q. 0.8 | r. 5.4 | s. 2.2 | t. 7.5 | u. 8.4 | v. 2.7 | w. 6.6 | x. 3.6 |



Can you double any
multiple of 10 up to
1 000 ?



I certainly can.
Can you?



1. See how quickly you can **double** all these numbers:

- | | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|-------|
| a. 230 | b. 150 | c. 460 | d. 630 | e. 390 | f. 520 | g. 710 | h. 90 |
| i. 740 | j. 540 | k. 530 | l. 260 | m. 140 | n. 420 | o. 450 | p. 60 |
| q. 610 | r. 730 | s. 850 | t. 360 | u. 280 | v. 170 | w. 750 | x. 80 |

2. See how quickly you can **double** all these numbers:

- | | | | | | |
|----------|----------|----------|----------|----------|----------|
| a. 2 400 | b. 4 300 | c. 2 100 | d. 6 300 | e. 3 700 | f. 4 900 |
| g. 4 800 | h. 5 400 | i. 3 400 | j. 8 100 | k. 9 200 | l. 5 800 |
| m. 8 400 | n. 7 700 | o. 1 800 | p. 7 400 | q. 9 500 | r. 5 100 |
| s. 7 300 | t. 8 900 | u. 9 900 | v. 5 600 | w. 4 600 | x. 8 800 |

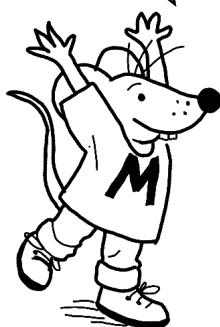
3. See how quickly you can **halve** all these numbers:

- | | | | | | |
|----------|----------|----------|----------|---------|----------|
| a. 340 | b. 8.4 | c. 460 | d. 7 800 | e. 110 | f. 8 600 |
| g. 7 400 | h. 160 | i. 3 600 | j. 2 800 | k. 9.6 | l. 4.2 |
| m. 5.2 | n. 380 | o. 920 | p. 76 | q. 3.2 | r. 7.8 |
| s. 4.6 | t. 2 600 | u. 12.4 | v. 15.8 | w. 17.6 | x. 13.6 |

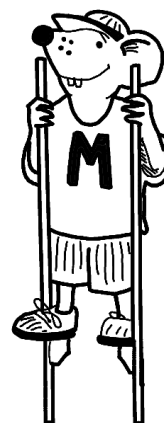
Who gets the other half,
that's what I want to know?



Here are some doubling and halving questions with words.



Words? That sounds like fun!



1.
 - a. Double $25\frac{1}{2}$
 - b. What is twice $39\frac{1}{2}$?
 - c. What is twice 6.8 ?
 - d. What is one half of one third?
 - e. Calculate one half of one quarter
 - f. What fraction 24m is 12m ?
 - g. What fraction of 56 is 14 ?
 - h. Calculate one half of 4 500.
 - i. What is a half of £455 ?
 - j. Halve 7.8
 - k. What is twice $57\frac{1}{2}$
 - l. What is a half of 4.5 ?
 - m. If 46 is a third of 138, what fraction of 138 is 23 ?



I liked that last question.
Give me another one,
please.

Ok, but there's no need to shout!

- n. If 64 is a quarter of 256, what fraction of 256 is 32 ?

2. Fill the numbers in the boxes:

- a. $640 \times \square = 1\,280$
- b. $\square \times 2 = 7.8$
- c. $8.6 \div \square = 4.3$
- d. $\square \div 2 = 5.8$
- e. $\square \times 2 = 1\,340$
- f. $\square /_2 = 335$

Answers

Page 4

1. a. 5 b. 4 c. 7 d. 9 e. 11 f. 9 g. 8
 2. a. 0 b. 1 c. 4 d. 9 e. 16 f. 25 g. 36
 h. 49 i. 64 j. 81 k. 100 l. 121 m. 144 n. 169
 3. a. 400 b. 2 500 c. 900 d. 1 600 e. 4 900 f. 3 600 g. 100
 h. 6 400 i. 8 100 j. 10 000

Page 5

1. a. 6 b. 9 c. 6 d. 9 e. 7 f. 6 g. 9
 2. a. 36 b. 169 c. 1 d. 16 e. 121 f. 25 g. 49
 h. 0 i. 81 j. 4 k. 9 l. 144 m. 64 n. 100
 3. a. 4 900 b. 1 600 c. 8 100 d. 400 e. 900 f. 6 400 g. 3 600
 h. 2 500 i. 10 000 j. 100

Page 6

1. a. 63 b. 3 c. 56 d. 45 e. 18 f. 6 g. 35
 h. 7 i. 10 j. 45
 2. a. 32 b. 7 c. 49 d. 56 e. 54 f. 4 g. 63
 h. 9 i. 9 j. 64
 3. a. 5.4 b. 4.2 c. 0.28 d. 5.6 e. 0.4 f. 7 g. 48
 h. 55 i. 18 j. 2.1
 4. a. 49 b. 12 c. 169 d. 11 e. 4 f. 64 g. 9
 h. 100 i. 144 j. 81

Page 7

1. a. Double 13 is 26 b. Double 1.2 is 2.4 c. Double 17.4 is 34.8
 d. Double 49.5 is 99 e. Double 1 188 is 2 376 f. Double £13.39 is £26.78
 g. Double 0.017 is 0.034 h. Double 22.945m is 45.89m
2. a. 68 b. 54 c. 112 d. 94 e. 126 f. 104 g. 150
 h. 98 i. 46 j. 72 k. 82 l. 198 m. 146 n. 162
 o. 190 p. 76 q. 186 r. 152 s. 96 t. 128 u. 144
 v. 20 w. 194 x. 106
3. a. 15.2 b. 9.0 c. 18.6 d. 5.0 e. 17.0 f. 12.2 g. 12.8
 h. 17.6 i. 6.8 j. 12.4 k. 10.2 l. 3.8 m. 9.8 n. 10.8
 o. 6.4 p. 3.0 q. 1.6 r. 10.8 s. 4.4 t. 15.0 u. 16.8
 v. 5.4 w. 13.2 x. 7.2

Answers (Contd)

Page 8

- | | | | | | |
|--------------------|------------------|------------------|------------------|------------------|------------------|
| 1. a. 460 | b. 300 | c. 920 | d. 1 260 | e. 780 | f. 1 040 |
| g. 1 420 | h. 180 | i. 1 480 | j. 1 080 | k. 1 060 | l. 520 |
| m. 280 | n. 840 | o. 900 | p. 120 | q. 1 220 | r. 1 460 |
| s. 1 700 | t. 720 | u. 560 | v. 340 | w. 1 500 | x. 160 |
| | | | | | |
| 2. a. 4 800 | b. 8 600 | c. 4 200 | d. 12 600 | e. 7 400 | f. 9 800 |
| g. 9 600 | h. 10 800 | i. 6 800 | j. 16 200 | k. 18 400 | l. 11 600 |
| m. 16 800 | n. 15 400 | o. 3 600 | p. 14 800 | q. 19 000 | r. 10 200 |
| s. 14 600 | t. 17 800 | u. 19 800 | v. 11 200 | w. 9 200 | x. 17 600 |
| | | | | | |
| 3. a. 170 | b. 4.2 | c. 230 | d. 3 900 | e. 55 | f. 4 300 |
| g. 3 700 | h. 80 | i. 1 800 | j. 1 400 | k. 4.8 | l. 2.1 |
| m. 2.6 | n. 190 | o. 460 | p. 38 | q. 1.6 | r. 3.9 |
| s. 2.3 | t. 1 300 | u. 6.2 | v. 7.9 | w. 8.8 | x. 6.8 |

Page 9

- | | | | | | |
|-------------------------|-------------------------|-------------------|-------------------------|-------------------------|-------------------------|
| 1. a. 51 | b. 79 | c. 13.6 | d. $\frac{1}{6}$ | e. $\frac{1}{8}$ | f. $\frac{1}{2}$ |
| g. $\frac{1}{4}$ | h. 2 250 | i. £227.50 | j. 3.9 | k. 115 | l. 2.25 |
| m. $\frac{1}{6}$ | n. $\frac{1}{8}$ | | | | |
| | | | | | |
| 2. a. 2 | b. 3.9 | c. 2 | d. 11.6 | e. 670 | f. 670 |