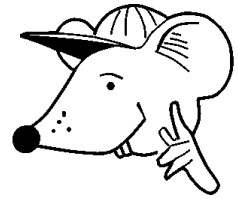


MATHEMATICS



N.S. Yr. 6 P.65

**Use known number facts to
multiply and divide mentally**

Equipment

Paper, pencil, ruler

MathSphere

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Concepts

The mental arithmetic questions on this module are about as hard as they get!

A number of different concepts are involved, mainly to do with decimal fractions.

They are:

1. multiplying a decimal fraction by 10 or 100. This is where add a nought will really get you into trouble

eg 2.3×10 is not 2.30..... but is 23

hence it is vital to re-inforce yet again the idea of moving a digit one place to the left when multiplying by 10.

2. dividing a whole number by 10 or 100

eg 23 divided by 10 is 2.3

3. doubling decimal fractions up to two decimal places

4. halving a decimal fraction

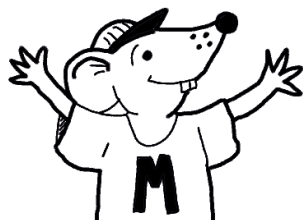
5. multiplying a decimal fraction by a single digit

eg $0.6 \times 4 = 2.4$

6. multiplying a two digit number such as 3.6 by a single digit

eg $4.5 \times 3 = 13.5$

Some children do get confused by this and a common error is to not cross over the decimal point eg $4.5 \times 3 = 12.15$ - watch out for this!

Multiply a decimal fraction by tens and hundreds

Remember: to multiply by ten move each digit one place to the left, including from the tenths to the units - there will not be any noughts in some of these answers!!

Complete these written questions:

1. $4.8 \times 10 =$

2. $9.6 \times 10 =$

3. $7.2 \times 100 =$

4. $6.4 \times 100 =$

5. $8.6 \times 10 =$

6. $1.3 \times 10 =$

7. $6.8 \times 100 =$

8. $3.2 \times 100 =$

9. $7.4 \times$ $= 74$

10. $0.5 \times$ $= 50$

11. $10 \times$ $= 7$

12. $100 \times$ $= 990$

13. $10 \times$ $= 66$

14. $100 \times$ $= 720$

Multiply a decimal fraction by tens and hundreds

This is where you really must move the digits one place to the left, including from the tenths to the units.

Don't just 'add a nought' pleaseeeeeee!!

Complete these written questions:

1. $3.4 \times 10 =$

2. $4.6 \times 10 =$

3. $5.2 \times 100 =$

4. $6.7 \times 100 =$

5. $7.1 \times 10 =$

6. $8.4 \times 10 =$

7. $9.3 \times 100 =$

8. $2.9 \times 100 =$

9. $3.4 \times$

$= 340$

10. $4.1 \times$

$= 41$

11. $10 \times$

$= 33$

12. $10 \times$

$= 126$

13. $100 \times$

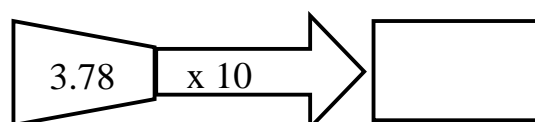
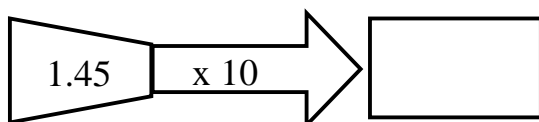
$= 440$

14. $100 \times$

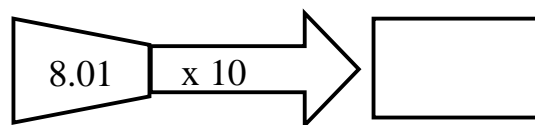
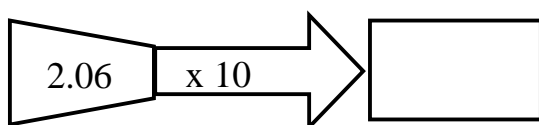
$= 630$

Multiplying decimal fractions by 10 and 100**Multiply all these fractions by 10:**

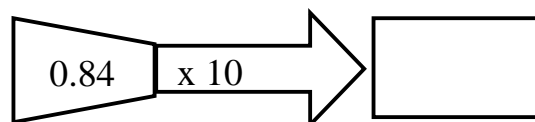
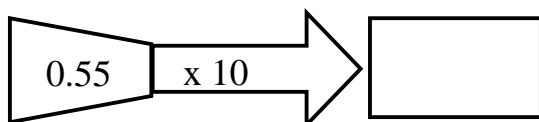
1.



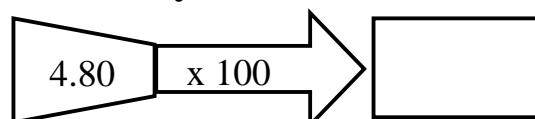
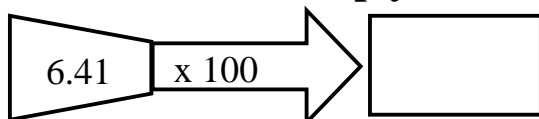
2.



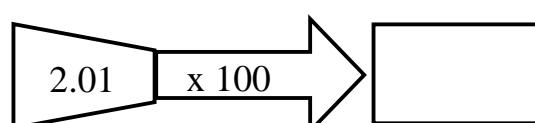
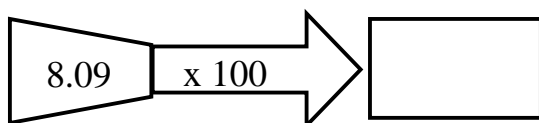
3.

**Multiply all these fractions by 100:**

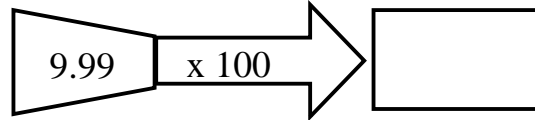
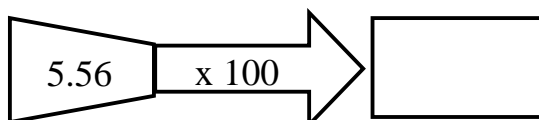
4.



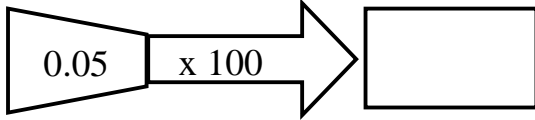
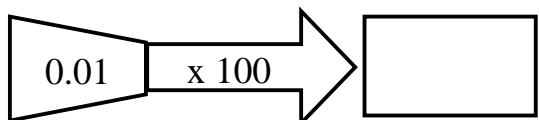
5.



6.



7.



Multiplying decimal fractions by 10 and 100**Multiply all these fractions by 10:**

1. $2.87 \times 10 \rightarrow$ $4.18 \times 10 \rightarrow$

2. $7.02 \times 10 \rightarrow$ $9.09 \times 10 \rightarrow$

3. $0.17 \times 10 \rightarrow$ $0.84 \times 10 \rightarrow$

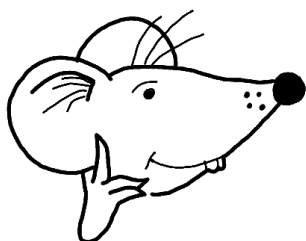
Multiply all these fractions by 100:

4. $2.35 \times 100 \rightarrow$ $5.37 \times 100 \rightarrow$

5. $1.05 \times 100 \rightarrow$ $6.04 \times 100 \rightarrow$

6. $7.55 \times 100 \rightarrow$ $8.88 \times 100 \rightarrow$

7. $0.02 \times 100 \rightarrow$ $0.08 \times 100 \rightarrow$

Dividing by 10 and 100

Move each digit one place to the right to divide by 10, two places to divide by 100 - including the units moving across the decimal point into the tenths.

Try these:

1. $45 \div 10 =$

2. $66 \div 10 =$

3. $85 \div 10 =$

4. $34 \div 100 =$

5. $68 \div 100 =$

6. $14 \div 100 =$

7. $62 \div 10 =$

8. $51 \div 10 =$

9. $97 \div 10 =$

10. $5 \div 100 =$

11. $7 \div 100 =$

12. $1 \div 100 =$

13. Find one tenth of 45

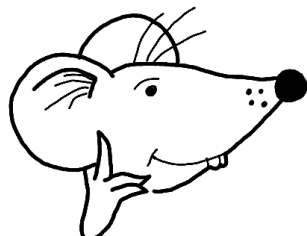
14. Find one tenth of 16

15. Find one hundredth of 2

16. Find one hundredth of 22

17. Find one tenth of 3

18. Find one tenth of 6

Dividing by 10 and 100

How do you count cows?

With a cowculator!!

Try these:

1. $65 \div 10 =$

2. $57 \div 10 =$

3. $76 \div 10 =$

4. $25 \div 100 =$

5. $59 \div 100 =$

6. $95 \div 100 =$

7. $53 \div 10 =$

8. $42 \div 10 =$

9. $88 \div 10 =$

10. $4 \div 100 =$

11. $6 \div 100 =$

12. $9 \div 100 =$

13. Find one tenth of 36

14. Find one tenth of 97

15. Find one hundredth of 1

16. Find one hundredth of 13

17. Find one tenth of 2

18. Find one tenth of 5

Doubling and halving decimal fractions

Try doubling these decimal fractions

1. Double 0.3

2. Double 0.5

3. Double 0.8

4. $0.6 \times 2 =$ 5. $0.2 \times 2 =$ 6. $0.8 \times 2 =$

7. Halve 0.4

8. Halve 0.3

9. Halve 0.6

10. $0.1 \div 2 =$ 11. $0.5 \div 2 =$ 12. $0.7 \div 2 =$

13. Double 0.2

14. Double 0.9

15. Double 0.7

16. $0.66 \div 2 =$ 17. $0.84 \div 2 =$ 18. $0.52 \div 2 =$

19. Halve 0.02

20. Halve 0.08

21. Halve 0.7

22. $0.52 \div 2 =$ 23. $0.18 \div 2 =$ 24. $0.36 \div 2 =$

Can you explain how you did these to someone else - perhaps you could help a friend get them correct!!



Doubling and halving decimal fractions

Try doubling these decimal fractions

1. Double 0.1

2. Double 0.6

3. Double 0.8

4. $0.5 \times 2 =$

5. $0.3 \times 2 =$

6. $0.7 \times 2 =$

7. Halve 0.6

8. Halve 0.2

9. Halve 0.8

10. $0.2 \div 2 =$

11. $0.9 \div 2 =$

12. $0.5 \div 2 =$

13. Double 0.4

14. Double 0.7

15. Double 0.5

16. $0.26 \div 2 =$

17. $0.64 \div 2 =$

18. $0.34 \div 2 =$

19. Halve 0.04

20. Halve 0.06

21. Halve 0.9

22. $0.16 \div 2 =$

23. $0.38 \div 2 =$

24. $0.54 \div 2 =$

Can you explain how you did these to someone else - perhaps you could help a friend get them correct!!



Multiplying a decimal fraction by a single digit

These are really just the same as multiplying two digits by one.

Eg 2.6×3

In my head I do $26 \times 3 = 78$

So $2.6 \times 3 = 7.8$

What way do you do them?

1. $0.6 \times 3 =$

2. $0.5 \times 4 =$

3. $0.8 \times 2 =$

4. $0.1 \times 3 =$

5. $0.7 \times 5 =$

6. $0.6 \times 6 =$

7. $3 \times$ $= 1.5$

8. $4 \times$ $= 1$

9. $5 \times$ $= 3$

10. $7 \times$ $= 2.8$

11. $0.7 \times 7 =$

12. $0.8 \times 6 =$

13. $0.9 \times 9 =$

14. $0.6 \times 6 =$

15. $0.7 \times 8 =$

16. $0.6 \times 9 =$

17. $7 \times$ $= 3.5$

18. $9 \times$ $= 1.8$

19. $4 \times$ $= 2$

20. $8 \times$ $= 4.8$

Multiplying a decimal fraction by a single digit

These are really just the same as multiplying two digits by one.

Eg 2.6×3

In my head I do $26 \times 3 = 78$

So $2.6 \times 3 = 7.8$

What way do you do them?

1. $0.5 \times 5 =$

2. $0.6 \times 6 =$

3. $0.7 \times 7 =$

4. $0.1 \times 1 =$

5. $0.3 \times 3 =$

6. $0.8 \times 8 =$

7. $5 \times$ $= 2.5$

8. $6 \times$ $= 4.2$

9. $8 \times$ $= 0.8$

10. $7 \times$ $= 1.4$

11. $0.2 \times 9 =$

12. $0.9 \times 5 =$

13. $0.3 \times 8 =$

14. $0.4 \times 6 =$

15. $0.5 \times 9 =$

16. $0.8 \times 6 =$

17. $3.4 \times$ $= 10.2$

18. $4.6 \times$ $= 23$

19. $5.5 \times$ $= 16.5$

20. $6.2 \times$ $= 24.8$

Explaining!

These sums can all be done in your head, but can you write down how you did them?

eg 3.6×5



30×5 is 150
 6×5 is 30
 $150 + 30 = 180$
so 3.6×5 is 18.0

There are other ways!

Or even quicker:
halve 3.6 and
multiply by 10

Explain in the box how you did the sum.

1. $3.6 \times 5 =$

2. $2.1 = 7 \times$

3. $2.4 \times 3 =$

4. $18 = 0.9 \times$

5. $4.6 \times 0.4 =$

6. $4.9 = 7 \times$

7. $2.9 \times 5 =$

8. $0.9 = 3 \times$

Answers**Page 3**

1. 48 2. 96 3. 720 4. 640 5. 86 6. 13 7. 680
 8. 320 9. 10 10. 100 11. 0.7 12. 9.9 13. 6.6 14. 7.2

Page 4

1. 34 2. 46 3. 520 4. 670 5. 71 6. 84 7. 930
 8. 290 9. 100 10. 10 11. 3.3 12. 12.6 13. 4.4 14. 6.3

Page 5

1. 14.5 and 37.8 2. 20.6 and 80.1 3. 5.5 and 8.4 4. 641 and 480
 5. 809 and 201 6. 556 and 999 7. 1 and 5

Page 6

1. 28.7 and 41.8 2. 70.2 and 90.9 3. 1.7 and 8.4 4. 235 and 537
 5. 105 and 604 6. 755 and 888 7. 2 and 8

Page 7

1. 4.5 2. 6.6 3. 8.5 4. 0.34 5. 0.68 6. 0.14 7. 6.2 8. 5.1 9. 9.7
 10. 0.05 11. 0.07 12. 0.01 13. 4.5 14. 1.6 15. 0.02 16. 0.22 17. 0.3 18. 0.6

Page 8

1. 6.5 2. 5.7 3. 7.6 4. 0.25 5. 0.59 6. 0.95 7. 5.3 8. 4.2 9. 8.8
 10. 0.04 11. 0.06 12. 0.09 13. 3.6 14. 9.7 15. 0.01 16. 0.13 17. 0.2 18. 0.5

Page 9

1. 0.6 2. 1 3. 1.4 4. 1.2 5. 0.4 6. 1.6 7. 0.2 8. 0.15 9. 0.3
 10. 0.05 11. 0.25 12. 0.35 13. 0.4 14. 1.8 15. 1.4 16. 0.33 17. 0.42
 18. 0.26 19. 0.01 20. 0.04 21. 0.35 22. 0.26 23. 0.09 24. 0.18

Page 10

1. 0.2 2. 1.2 3. 1.6 4. 1 5. 0.6 6. 1.4 7. 0.3 8. 0.1 9. 0.4
 10. 0.1 11. 0.45 12. 0.25 13. 0.8 14. 1.4 15. 1 16. 0.13 17. 0.32
 18. 0.17 19. 0.02 20. 0.03 21. 0.45 22. 0.08 23. 0.19 24. 0.27

Page 11

1. 1.8 2. 2 3. 1.6 4. 0.3 5. 3.5 6. 3.6 7. 0.5 8. 0.25 9. 0.6 10. 0.4
 11. 4.9 12. 4.8 13. 8.1 14. 3.6 15. 5.6 16. 5.4 17. 0.5 18. 0.2 19. 0.5 20. 0.6

Page 12

1. 2.5 2. 3.6 3. 4.9 4. 0.1 5. 0.9 6. 6.4 7. 0.5 8. 0.7 9. 0.1 10. 0.2
 11. 1.8 12. 4.5 13. 2.4 14. 2.4 15. 4.5 16. 4.8 17. 3 18. 5 19. 3 20. 4

Page 13

1. 18 2. 0.3 3. 7.2 4. 20 5. 1.84 6. 0.7 7. 14.5 8. 0.3