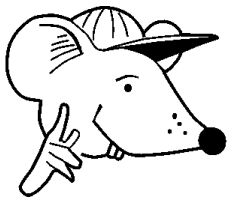
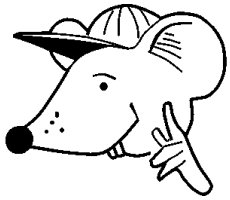
Back to Previous Menu



MATHEMATICS



N.S. Yr. 5 P.71

Developing calculator skills.

Equipment

Paper, pencil, calculator with four functions plus square root button (for later use) and, if possible, change of sign button.

MathSphere

Concepts

This module is concerned with using a calculator efficiently, checking results and developing a sense for when the results are meaningless i.e. a bad result given following a typing error.

A good calculator is essential. There is a great variety available today and one should be chosen that has the four functions (+, –, ×, ÷), a square root button and a change of sign button (this normally looks like this: +/–). The square root button will be used later.

It is possible to use a scientific calculator if one has already been purchased, and it is often useful to compare results on a scientific calculator and a non-scientific calculator as these are not always the same. A scientific calculator will generally be of more use in a secondary school.

Children should be able to use the keys properly. They should know how to clear the calculator, how to enter numbers and operations and how to read the results. Interpreting the results is also important and this will develop more in different contexts as time progresses (eg. 3.2 on a calculator means £3.20 if the problem is about money).

Children should recognise a negative output.

They should be able to carry out calculations of sums that involve several steps (eg. $4 \times (34 + 89)$).

They should be able to interpret a rounding error such as 5.9999999 as 6.

They should be able to extract the information from a question that needs to be typed into the calculator and do this properly.

N.B. In writing this module, we have tried to be aware of the great variety of calculators available today, but some of the points we make may be slightly different on different calculators. For example, some calculators show 6 digits, most show 8 and some show 10. Some calculators handle rounding errors better than others (ie some will show 5.9999999 as 6, other will show it as 5.9999999). Be prepared to be flexible in interpreting the questions and answers.

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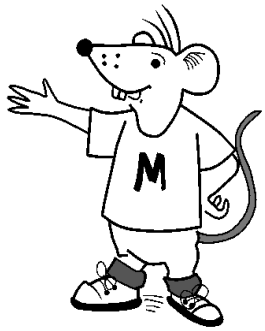
Remember that when using a calculator you should always clear the display before you begin.

1. Become familiar with your calculator by trying the following calculations:

a. 26 × 78 **b.** 357 – 73 **c.** 356 + 328 + 56 **d.** 226 568 ÷ 254
e. 457^2 **f.** 23 × 15 ÷ 34 **g.** 987 – 452 + 375 **h.** 330 481 ÷ 563

2. Experiment with the ***clear entry*** key. Type in the numbers in each sum and then correct them to the number in brackets before pressing the **=** key.

For example, in number **1**, type in **33** × **45**, press the ***clear entry*** key and then type in **46** instead of **45**.



a. 33 × 45 (46) **b.** 746 + 374 (384) **c.** 23 400 (23 406) ÷ 6
d. 167 (168) – 89 (88)

Now you know how to correct a mistake.

3. These sums all produce a **negative** answer. Try them and look for the negative sign on your calculator display.

a. 23 – 56 **b.** 678 – 951 **c.** 1 – 359 **d.** 0 – 65 **e.** 23 678 – 67 825

4. If your calculator has a change sign button, you should be able to try these sums. The change sign button normally looks like this: **+/–** Enter the number first and then press this key.

a. ⁻5 + 8 **b.** ⁻34 × 7 **c.** 56 × ⁻34 **d.** 89 + ⁻76 **e.** 61 × ⁻79

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Don't forget to clear your calculator before you begin.

1. Become familiar with your calculator by trying the following calculations:

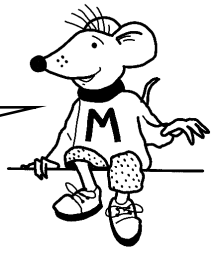
a. 56 × 28 **b.** 488 – 98 **c.** 462 + 767 + 94 **d.** 297 110 ÷ 365
e. 755^2 **f.** 41 × 76 ÷ 56 **g.** 765 – 379 + 233 **h.** 231 768 ÷ 666

2. Experiment with the ***clear entry*** key. Type in the numbers in each sum and then correct them to the number in brackets before pressing the **=** key.

For example, in number **1**, type in **78** × **25**, press the ***clear entry*** key and then type in **26** instead of **25**.

a. 78 × 25 (26) **b.** 572 + 886 (889) **c.** 15 645 (15 845) ÷ 5
d. 204 (203) – 75 (74)

Now you know how to correct a mistake.



3. These sums all produce a **negative** answer. Try them and look for the negative sign on your calculator display.

a. 46 – 78 **b.** 845 – 962 **c.** 8 – 78 **d.** 0 – 459 **e.** 17 265 – 83 778

4. If your calculator has a change sign button, you should be able to try these sums. The change sign button normally looks like this: **+/–** Enter the number first and then press this key.

a. ⁻7 + 19 **b.** ⁻5 × 9 **c.** 62 × ⁻52 **d.** 57 + ⁻32 **e.** 95 × ⁻26

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There are two problems with **money** calculations:

Here is the first:

The calculator does not have a **£** sign. This means you must remember to put the **£** sign in your answer when you have finished.

Here is the second:

We always write money with two decimal places, like this: **£2.78**.

If the calculator gives you an answer with one decimal place, like this: **3.9**, you must remember that this is really **£3.90** and put the zero in yourself.

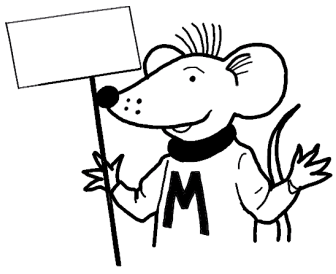
If the calculator gives you more than two decimal places, like this: **12.433333**, you must just write down the first two decimal places like this: **£12.43**.

1. Here are some money sums. Work them out and remember these rules when you write down the answers.

a. £34.78 × 2 **b.** £16.66 × 5 **c.** £34.98 ÷ 7 **d.** £24.65 – £13. 35
e. £17.89 ÷ 3 **f.** £45.92 × 5 **g.** £83.55 ÷ 9 **h.** £32.99 – £27.39

Sometimes we need to calculate two or more steps in a sum.

Don't forget to work out anything in brackets first.



2. **a.** 7 × (45 + 23) **b.** (35 + 23) × (76 + 82)
c. 93 × (65 – 45) **d.** (45 – 23) × (75 – 39)
e. 45 ÷ (72 – 67) **f.** (88 – 34) × (254 + 884)

3. Do these two sums give the same answer? Give a reason.
36 × (16 + 75) and 36 × 16 + 75

Which two whole numbers do each of these lie between?
For example, in number one, **54.85** lies between **54** and **55**.

1. a. 54.85 **b.** 23.46 **c.** 37.89 **d.** 27.34 **e.** 12.84
2. a. 12.9 **b.** 27.03 **c.** 16.99 **d.** 34.7 **e.** 12.005

In these questions, write down an approximate answer first. Then work them out and see how close your approximation was.

Here is an example:

Calculate **23.97 × 4.8**. My estimate is **24 × 5 = 120**.

My calculation on the calculator: **23.97 × 4.8 = 115.056**.

My estimate of **120** was quite close. Well done me!

3. a. 48.9 × 11 **b.** 98.7 × 53 **c.** 30.86 ÷ 9.8 **d.** 987 ÷ 38 **e.** 1.4 × 165

4. a. 85.6 ÷ 1.2 **b.** 198 + 256 **c.** 67 × 35 **d.** 23.9 × 8.66 **e.** 17 × 18

Do these calculations and then check them by doing the inverse calculation.
Eg. 3.65 × 5.83 = 21.2795 Check: 21.2795 ÷ 5.83 = 3.65

5. a. 9.67 × 1.8 **b.** 76.93 + 32.8 **c.** 35.2 ÷ 53 **d.** 24.83 × 3.2

6. a. 834.7 – 34.61 **b.** 283 + 23.12 **c.** 34.7 ÷ 53 **d.** 12.7 × 45.32

Your calculator finger must be worn out by now!

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Use your calculator to answer these questions:

1. Which number is halfway between 38 and 142?

2. The perimeter of a rectangle is 124cm. One of the sides is 28 cm long. How long is the other side?

3. Joseph has £4.60 per week pocket money.
How much pocket does he get in a year?

4. How many pieces of ribbon 45cm long can be cut from a roll 4m long?

5. A packet of pencils weighs 100.8g. If each pencil weighs 4.2g, how many pencils are there in each box?

6. The perimeter of a square is 250cm. How long is one of the sides?

7. What is the number in the box?

3.45 + ☐ = 7.62

8. What is the average (mean) of 4.56, 3.98 and 2.44 ?

9. It cost £3.60 for a child and £5.80 for an adult to go to the theme park. How much would it cost for a family of three children and two adults?

10. It costs £4.70 to get into the cinema. A small party of people pay £37.60. How many people are there in the party?

11. Addy, Divvy, Multy and Subby have stalls at a fete.
Addy makes £23.78, Divvy makes £42.76, Multy makes £33.80, and Subby makes 24.77.
How much money do they make altogether?

12. Which number goes in the box?

67.8 × ☐ + 3.9 = 288.66

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Answers

Page 3

1. a. 2 028 **b.** 284 **c.** 740 **d.** 892 **e.** 208 849 **f.** 10.147058 **g.** 910 **h.** 587

2. a. 1 518 **b.** 1 130 **c.** 3 901 **d.** 80

3. a. ¯33 **b.** ¯273 **c.** ¯358 **d.** ¯65 **e.** ¯44 147

4. a. 3 **b.** ¯238 **c.** ¯1 904 **d.** 13 **e.** ¯4 819

Page 4

1. a. 1 568 **b.** 390 **c.** 1 323 **d.** 814 **e.** 570 025 **f.** 55.642857 **g.** 619 **h.** 348

2. a. 2 028 **b.** 1 461 **c.** 3 169 **d.** 129

3. a. ¯32 **b.** ¯117 **c.** ¯70 **d.** ¯459 **e.** ¯66 513

4. a. 12 **b.** ¯45 **c.** ¯3 224 **d.** 25 **e.** ¯2 470

Page 5

1. a. £69.56 **b.** £83.30 **c.** £4.99 **d.** £11.30 **e.** £5.96 **f.** £229.60 **g.** £9.28 **h.** £5.60

2. a. 476 **b.** 9 164 **c.** 1 860 **d.** 792 **e.** 9 **f.** 61 452

3. First answer: 3 276 Second answer: 651 Reason: Putting in brackets changes the order of calculation.

Page 6

1. a. 54/55 **b.** 23/24 **c.** 37/38 **d.** 27/28 **e.** 12/13

2. a. 12/13 **b.** 27/28 **c.** 16/17 **d.** 34/35 **e.** 12/13

In the next question, sample estimates are given. These are not the only ones possible and children's estimates may be a little different.

3.

a. Est: 50 × 10 = 500 Ans: 537.9

b. Est: 100 × 50 = 5 000 Ans: 5 231.1

c. Est: 30 ÷ 10 = 3 Ans: 3.1489795

d. Est: 1 000 ÷ 40 = 25 Ans: 25.973684

e. Est: 1.5 × 160 = 240 Ans: 231

4.

a. Est: 80 ÷ 1 = 80 Ans: 71.333333

b. Est: 200 + 250 = 450 Ans: 454

c. Est: 70 × 30 = 2 100 Ans: 2 345

d. Est: 20 × 10 = 200 Ans: 206.974

e. Est: 15 × 20 = 300 Ans: 306

5. a. 17.406 **b.** 109.73 **c.** 0.6641509 **d.** 79.456

6. a. 800.09 **b.** 306.12 **c.** 0.6547169 **d.** 575.564

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Answers (Contd)

Page 7

1. 90	**2.** 34 cm	**3.** £239.20	**4.** 8	**5.** 24	**6.** 62.5cm
7. 4.17	**8.** 3.66	**9.** £22.40	**10.** 8	**11.** £125.11	**12.** 4.2