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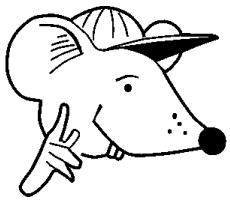
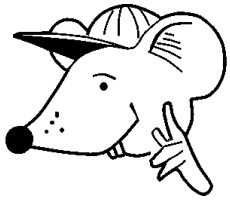


MATHEMATICS



N.S. Yr. 6 P.77

Explain methods and reasoning about numbers orally and in writing.

Equipment

Paper, pencil.

MathSphere

Concepts

In this module, children should be encouraged to explain the methods they have used when carrying out calculations involving an element of mental work or calculations that have been done entirely mentally.

They should explain their methods initially orally to each other or to their teacher/parent.

Here are some examples of the type of explanations children should be encouraged to give, either orally or in writing:

6 500 – 3 700 From 3 700 to 4 000 is 300. Plus another 2 500 gives a difference of 2 800.

28 × 15 28 × 10 = 280. Plus half as much again. 280 +140 = 420.

17.5% of £2 000
10% of £2 000 = £200
5% of £2 000 = £100
$2^1/_2$% of £2 000 = £50
$17^1/_2$% of £2 000 = £350

$^1/_{40}$ of 840 $^1/_{10}$ of 840 is 84. $^1/_4$ of 84 is 21. Therefore $^1/_{40}$ of £840 is £21

Remember here that doing a calculation mentally does not mean that children are not allowed to write anything down at all. It is normally fine to jot down intermediate results. For example, in the VAT sum a child may jot down:

200
100
50
350

as they describe the calculation, just as an adult might do, in fact.

In this module, we simply give examples for the children to calculate. We leave it to the teacher/parent to decide when they want the answer orally and when the children are ready to write down their explanations.

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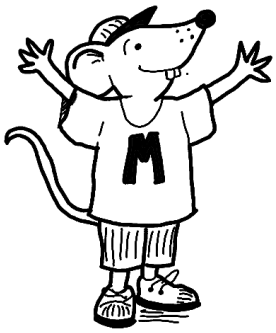


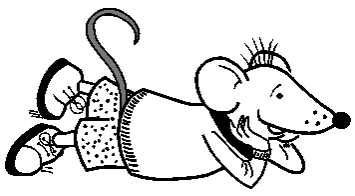
Here are lots of sums for you to work out. Try to do as much of them in your head as you can.

Then explain how you did them to your friends, teacher or parent.

1. **a.** 7 900 + 4 800 **b.** 700 – 456 **c.** 44 × 15
d. 8 000 – 3 888 **e.** 4 010 + 9 320 **f.** 10% of 560
g. $^{1}/_{40}$ of 480 **h.** 675 ÷ 9 **i.** 17.5% of £5 000
j. $^{1}/_{20}$ of 3 000 **k.** 5 000 – 2 340 **l.** 25% of £ 2 400

2. **a.** 145 ÷ 9 **b.** 60% of 500 **c.** $^{3}/_{4}$ of 56
d. 24 × 25 **e.** $7^{3}/_{4} + 8^{1}/_{2}$ **f.** 20 % of 360
g. 800 ÷ 3 **h.** 70 × 800 **i.** 3 500 – 1 460
j. $9 \times 7^{1}/_{3}$ **k.** $17^{1}/_{2}$% of £4 000 **l.** 936 ÷ 9

3. **a.** 8 500 + 3 700 **b.** 900 – 672 **c.** 36 × 15
d. 6 000 – 4 944 **e.** 5 820 + 6 480 **f.** 20% of 520
g. $^{1}/_{30}$ of 360 **h.** 714 ÷ 7 **i.** 17.5% of £9 000
j. $^{1}/_{50}$ of 4 000 **k.** 9 000 – 7 840 **l.** 25% of £ 5 200



Must be time to relax after that lot!!!!!!!

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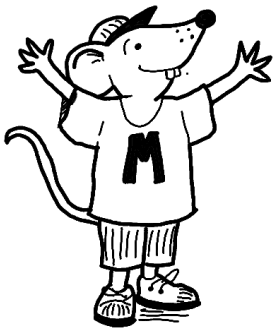


Here are lots of sums for you to work out. Try to do as much of them in your head as you can.

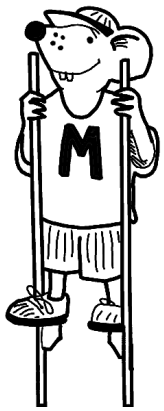
Then explain how you did them to your friends, teacher or parent.

1. **a.** 7 300 + 6 900 **b.** 950 – 352 **c.** 64 × 15
d. 12 000 – 752 **e.** 5 030 + 7 040 **f.** 10% of 720
g. $^{1}/_{20}$ of 560 **h.** 675 ÷ 15 **i.** 17.5% of £9 000
j. $^{1}/_{30}$ of 9 000 **k.** 4 000 – 3 550 **l.** 25% of £1 800

2. **a.** 540 ÷ 15 **b.** 30% of 700 **c.** $^{3}/_{4}$ of 76
d. 50 × 25 **e.** $8^{1}/_{4} + 6^{3}/_{4}$ **f.** 40 % of 600
g. 700 ÷ 4 **h.** 90 × 300 **i.** 2 500 – 570
j. $16 \times 4^{1}/_{4}$ **k.** $17^{1}/_{2}$% of £10 000 **l.** 832 ÷ 8

3. **a.** 6 500 + 3 300 **b.** 800 – 749 **c.** 46 × 15
d. 5 000 – 3 622 **e.** 8 230 + 8 320 **f.** 40% of 900
g. $^{1}/_{20}$ of 540 **h.** 424 ÷ 8 **i.** 17.5% of £2 000
j. $^{1}/_{40}$ of 6 000 **k.** 7 000 – 420 **l.** 17.5% of £ 4 800

Time to get out on your stilts!



Here are lots of sums in words for you to work out. Try to do as much of them in your head as you can.

Then explain how you did them to your friends, teacher or parent.

1. A coat costs £40 + VAT (17.5%). How much VAT is there to pay on this coat?

2. A recipe that weighs 400g altogether has 20% eggs. How much do the eggs weigh?

3. 30% of Peter's stamp collection are American stamps. If he has 440 stamps altogether, how many are American.

4. Jessica shares her 459 games cards between her nine friends. How many do they get each?

5. Harry's father put 45 litres of petrol into his car. He then used 20% of this fuel. How many litres has he used?

6. In a triathlon (swimming, cycling, running), 40% of the race was the running. If the total distance was 120km, how far did the athletes have to run?

7. Charlie had saved £250 for a new cycle. His mother gave him another 20%. How much did he have altogether?

8. If one fifth of a number is 34, what is the number?

9. If one twentieth of a number is 350, what is the number?

10. A Company wanted to carry out a survey on five thousand people. Unfortunately, 450 were not available. How many people answered the survey questions?

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These questions are more difficult. You may need to write down more on paper to answer them.

Have your pencil at the ready!

1. 485 Christmas cards were divided between 37 shops. How many cards did each shop receive and how many cards were left over.

2. Fifteen schools visited an outdoor activities centre. Each school was allowed to bring twenty seven children and four teachers. How many children were there altogether? How many teachers were there? How many people were there altogether?

3. What is five sevenths of four thousand two hundred?

4. What is the VAT on £4 500 at 17.5%?

5. I am thinking of a number. If I multiply it by seventeen and add 7.5, the answer is 84. What number am I thinking of?

6. Ghodsi is trying to hit a target at a school fete. She scores no points for the first four times she hits the target and then twelve points every time she hits it after that. If she hits the target 23 times altogether, how many points does she score?

7. Multiply 45 by 21 and take the answer from 1 000.

8. A company makes light bulbs. 7.5% do not work properly. If they make 12 000 in one day, how many have to be thrown away?

9. First class stamps for 200g packets cost 72p and second class stamps cost 54p. How much would 24 first and 56 second class stamps cost?

10. What is ten percent of twenty percent of eight hundred?

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Answers

Page 3

1. **a.** 12 700 **b.** 244 **c.** 660 **d.** 4 112 **e.** 13 330 **f.** 56 **g.** 12
h. 75 **i.** £875 **j.** 150 **k.** 2 660 **l.** 600

2. **a.** $16^{1}/_{9}$ **b.** 300 **c.** 42 **d.** 600 **e.** $16^{1}/_{4}$ **f.** 72 **g.** $266^{2}/_{3}$
h. 56 000 **i.** 2 040 **j.** 66 **k.** £700 **l.** 104

3. **a.** 12 200 **b.** 228 **c.** 540 **d.** 1 056 **e.** 12 300 **f.** 104 **g.** 12
h. 102 **i.** £1575 **j.** 80 **k.** 1 160 **l.** £1 300

Page 4

1. **a.** 14 200 **b.** 598 **c.** 960 **d.** 11 248 **e.** 12 070 **f.** 72 **g.** 28
h. 45 **i.** £1 575 **j.** 300 **k.** 450 **l.** £450

2. **a.** 36 **b.** 210 **c.** 57 **d.** 1 250 **e.** 15 **f.** 240 **g.** 175
h. 27 000 **i.** 1 930 **j.** 68 **k.** £1 750 **l.** 104

3. **a.** 9 800 **b.** 51 **c.** 690 **d.** 1 378 **e.** 16 550 **f.** 360 **g.** 27
h. 53 **i.** 350 **j.** 150 **k.** 6 580 **l.** 840

Page 5

1. £7 **2.** 80g **3.** 132 **4.** 51 **5.** 9 litres **6.** 48km
7. £300 **8.** 170 **9.** 7 000 **10.** 4 550

Page 6

1. Each shop 13, remainder 4 **2.** 405 children, 60 teachers, 465 altogether
3. 3 000 **4.** £787.50 **5.** 4.5 **6.** 228 **7.** 55
8. 900 **9.** 1 728p + 3 024p = 4 752p = £47.52 **10.** 16