SMILE WORKCARDS

Division Pack One

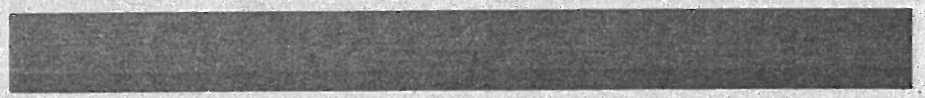
Contents

You will need: gummed strips

DIVIDING STRIPS

1 24 ÷ 4

Cut a strip 24cm.



Fold into 4.

How long?

Stick ¼ of 24cm into your book: write on it 24cm ÷ 4 = 6cm.

2 16 ÷ 8

Cut a strip 16cm.

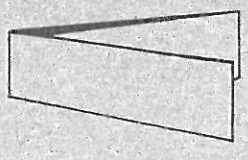
Fold into 8.

How long?

Stick ⅛ of 16cm into your book: write 16cm ÷ 8 = ■

3 18 ÷ 3

Folding into 3 is more difficult!



Stick ⅓ of 18cm into your book: ■ ÷ ■ = ■

Use strips of gummed paper to divide:

4) 15 ÷ 3
5) 20 ÷ 4
6) 32 ÷ 8
7) 20 ÷ 8
8) 10 ÷ 4
9) 52 ÷ 4
10) 24 ÷ 6 (How will you fold it?)

24 Squares

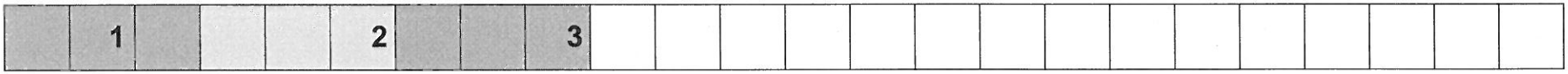
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

1) Colour them in 2's

$24 \div 2 = 12$

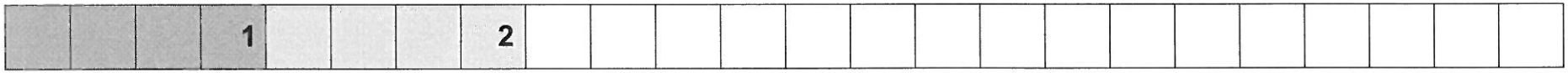
2) Colour them in 3's

$24 \div 3 = \square$



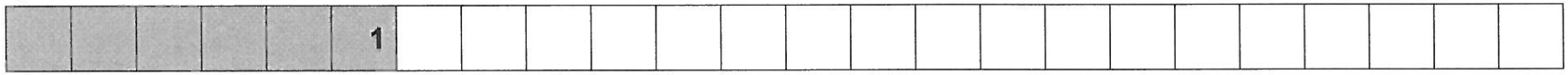
3) Colour them in 4's

$24 \div \square = \square$



4) Colour them in 6's

$\square \div \square = \square$



5) $24 \div 8 = \square$ **6)** $24 \div 12 = \square$ **7)** $24 \div 24 = \square$ **8)** $24 \div 1 = \square$

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36

9) $36 \div 2 = \square$ **10)** $36 \div 3 = \square$ **11)** $36 \div 4 = \square$ **12)** $36 \div 6 = \square$

13) $36 \div 9 = \square$ **14)** $36 \div 12 = \square$ **15)** $36 \div 18 = \square$ **16)** $36 \div 36 = \square$

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Dealing the Cards

You will need a pack of cards.

1) In Snap 2 players get all the cards. How many each?
Deal the cards and write your answer:
52 ÷ 2 = ■

2) "Bridge" is a card game for 4 players. Deal all the cards . . . 52 ÷ 4 = ■ . . . . How many each?

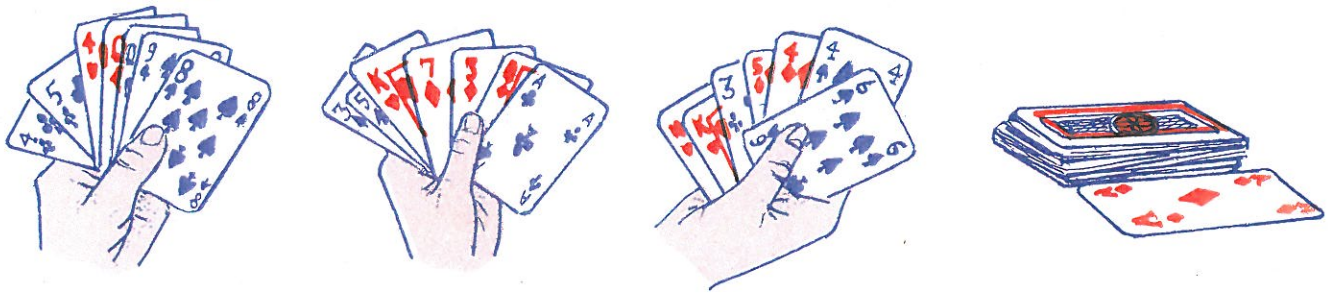
3) In "Sevens" the four 7's are taken out. Deal the other 48 cards:
For 4 players, how many cards each 48 ÷ 4 = ■
For 8 players, 48 ÷ 8 = ■
For 6 players, 48 ÷ 6 = ■
For 3 players?

Turn over

4) "Teen Do Panch" is an Indian card game for 3 players.
30 cards are used.
How many cards each?

5) In "Whist" all the cards are used. Each player has 13 cards.
How many players are needed? $52 \div \blacksquare = 13$

6) (a) 3 players play "Rummy" with the whole pack.
They have seven cards each . . .



How many remain?
(b) What is the largest group that can play Rummy?
How many cards remain?

7) In "Brag" the whole pack is used. Each player has 9 cards.
How many can play?
Any remainder?

Discuss

How many can play Rummy using picture cards only?

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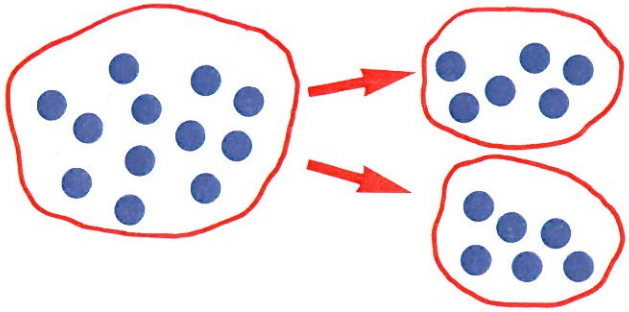
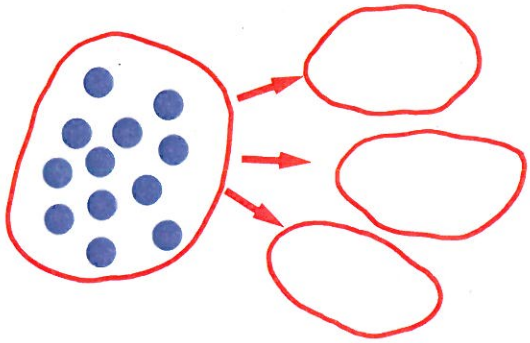
Sharing Counters

You will need counters

1) Share 12 counters into 2 equal sets.
How many in each set?
Write your answer:
12 ÷ 2 = ■



2) Share 12 counters into 3 equal sets.
How many in each?
Write:
12 ÷ 3 = ■



3) Take 18 counters.
Share them into 2 sets, 18 ÷ 2 = ■
6 sets, 18 ÷ 6 = ■
9 sets, 18 ÷ 9 = ■

4) Use counters to work out

24 ÷ 2 = ■
24 ÷ 3 = ■
27 ÷ 3 = ■
28 ÷ 7 = ■
30 ÷ 5 = ■
32 ÷ 8 = ■
36 ÷ 9 = ■
39 ÷ 3 = ■

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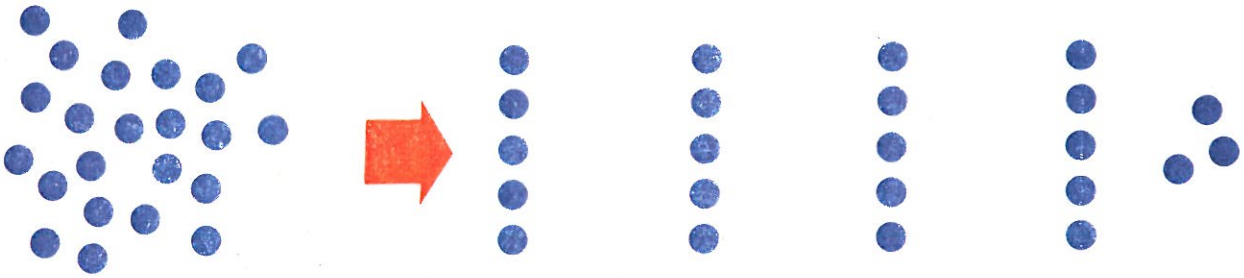
Dividing Counters

You will need counters

1) Take 15 counters.
Divide them into sets of 3.

How many sets?
Write in your book:
15 ÷ 3 = ■

2) Take 23 counters.
Divide them into sets of 5.



How many sets?
It's four sets,but there are some left over.
Write in your book:
23 ÷ 5 = 4, remainder ■

3) Take 18 counters.
(a) Divide into sets of 6. Write 18 ÷ 6 = ■
(b) Divide into sets of 5. Write 18 ÷ 5 = ■ , remainder ■

4) Use counters to answer these. If there is a remainder, say what it is.
(a) 17 ÷ 3 (b) 25 ÷ 5 (c) 21 ÷ 4 (d) 7 ÷ 2
(e) 35 ÷ 7 (f) 35 ÷ 6 (g) 43 ÷ 7 (h) 31 ÷ 9

SHORT DIVISION

69 ÷ 3

$$3\overline{)69}$$

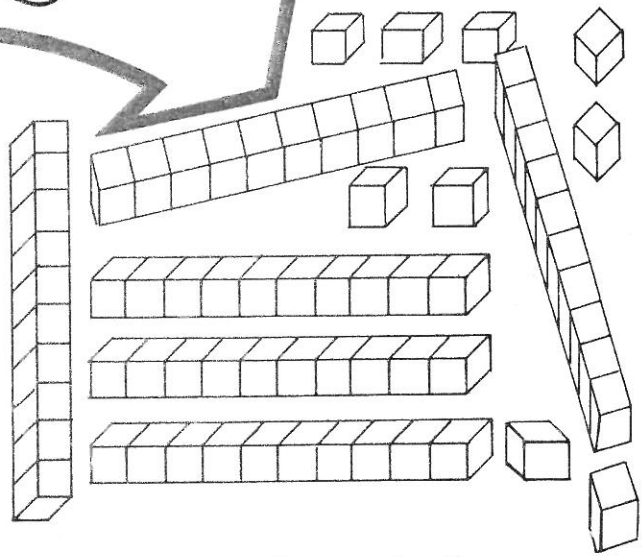
How many 3's in 6?

$$\begin{array}{r} 2\blacksquare \\ 3\overline{)69} \end{array}$$

How many 3's in 9?

$$\begin{array}{r} 23 \\ 3\overline{)69} \end{array}$$

ANSWER
69 ÷ 3 = 23



Share into 3 equal piles.

69 . . . . that's 60 + 9
. . . . that's 6 tens and 9 units

Share 6 tens 3 ways
. . . . that's 2 tens each

Share 9 units 3 ways
. . . . that's 3 units each

ANSWER
2 tens, 3 units or 23

Now try these:

1) 84 ÷ 2
2) 77 ÷ 7
3) 84 ÷ 4
4) 63 ÷ 3
5) 80 ÷ 8
6) 286 ÷ 2
7) 840 ÷ 4
8) 693 ÷ 3
9) 404 ÷ 4

SHORT DIVISION— CARRYING

68 ÷ 4

$$4\overline{)\square\square\,68}$$

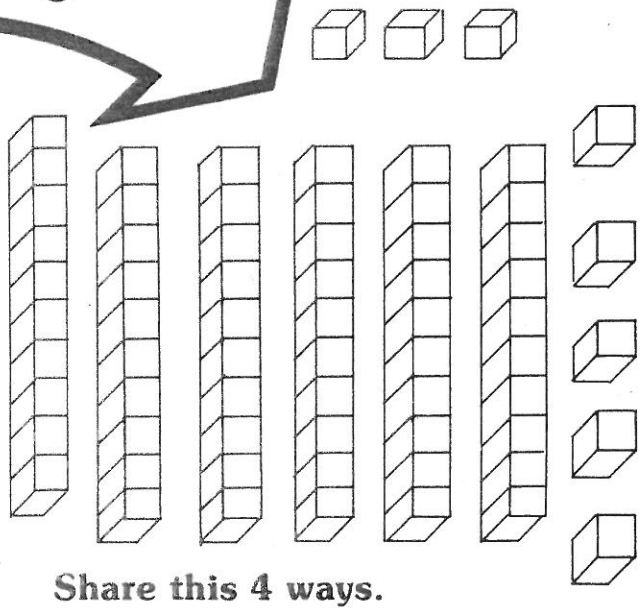
How many 4's in 6?
1 remainder 2

$$4\overline{)1\square\,6^{2}8}$$

How many 4's in 28?
7

$$4\overline{)17\,68}$$

ANSWER
68 ÷ 4 = 17



Share this 4 ways.

Share the tens . . . . that's 1 each and 2 left over

Change the 2 tens left over into 20 units . . . . that makes 28 units altogether

Now share out the 28 units . . . . 7 each

ANSWER
1 ten, 7 units or 17

Now try these:

1) 72 ÷ 3
2) 91 ÷ 7
3) 56 ÷ 4
4) 84 ÷ 3
5) 934 ÷ 3
6) 812 ÷ 4
7) 906 ÷ 6
8) 253 ÷ 7
9) 486 ÷ 4
10) 158 ÷ 6
11) 289 ÷ 4

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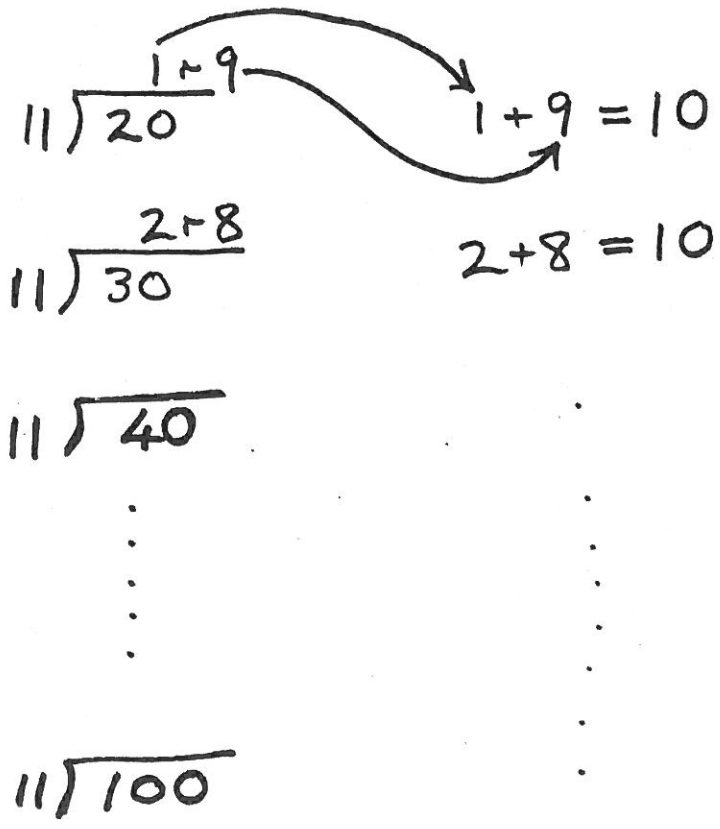
You will need: 100 square.

Patterns with 11 and 13

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Take a 100 - square
Shade the numbers -
11, 22, 33, ------
and all multiples of 11

Copy this pattern and finish it :-



Turn over

This time shade the multiples of 13
(13, 26, 39, -------)

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Now copy this pattern and finish it:-

$13\overline{)20}$ 1 r 7 $\quad 3\times1 + 7 = 10$

$13\overline{)30}$ 2 r 4 $\quad 3\times2 + 4 = 10$

$13\overline{)40}$

.
.
.
.

$13\overline{)100}$

. . . . . .

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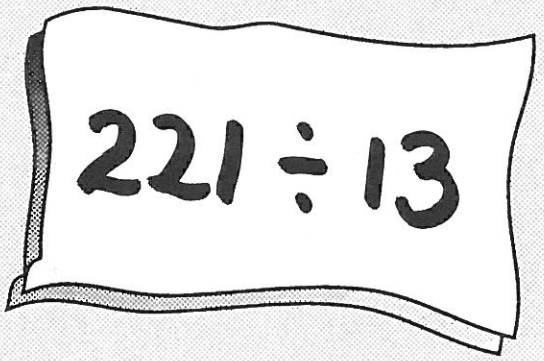
A Problem of Division

An activity for 2 or more.

You may **not** *use a calculator.*



- Explain how you worked out the answer.
- Does your method work for 266 ÷ 14 ?
- Can you find a different method?

ODD ONE OUT

Look at this set of five numbers: { 53, 123, 137, 143, 158 }

WHICH IS THE 'ODD ONE OUT'?

Divide by 3 and the remainder is 2

← With this rule **123** is 'odd one out' →

53	÷ 3	= 17	rem.	2
123	÷ 3	= 41		
137	÷ 3	= 45	rem.	2
143	÷ 3	= 47	rem.	2
158	÷ 3	= 52	rem.	2

Divide by 5 and the remainder is 3

← With this rule **137** is 'odd one out' →

53	÷ 5	= 10	rem.	3
123	÷ 5	= 24	rem.	3
137	÷ 5	= 27	rem.	2
143	÷ 5	= 28	rem.	3
158	÷ 5	= 31	rem.	3

You can make the other three 'odd one out' with other rules.

These three will do:

odd numbers

Divide by 7 and the remainder is 4

3 digit numbers

(1) Which rule makes <u>which</u> number 'odd one out'?

(2) Here is an easier set of numbers: { 9, 25, 64, 79 }
Find four rules to make each number in turn 'odd one out'.

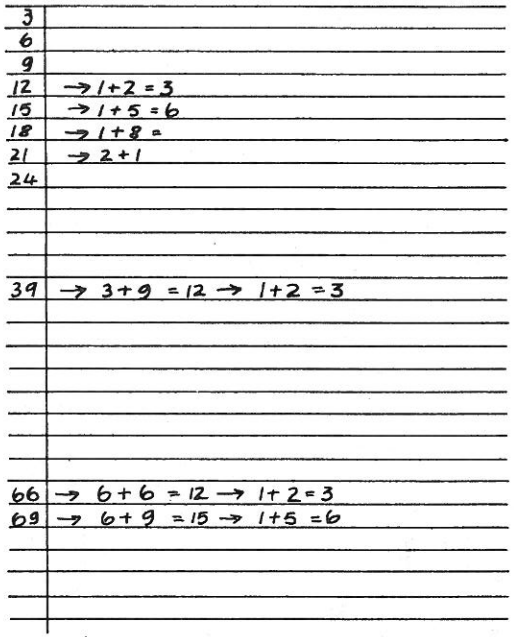
(3) Make up a set of numbers and rules yourself.

Multiples of 3 and 9

1. Write the multiples of 3 in a column.

   Continue the pattern shown here.

   If the pattern goes wrong, find your mistake.



2. Continue the table to include some multiples of 3 which are bigger than 100. Does the pattern still work?

3. Make a new table for some numbers which are not multiples of 3. What do you notice?

4. Write the multiples of 9 in a column. Can you find a pattern for multiples of 9?

5. Is 297 114 236 a multiple of 3? Say why.

6. Is 67 421 502 a multiple of 9? Say why.

7. Write down 3 more large numbers which are multiples of 3. Divide your numbers by 3 to check.

8. Write down some multiples of 9 and check them.

Dividing by Guessing

$72 \div \blacksquare = 6$

I GUESS IT WILL BE 8. I'LL PRESS 7 2 ÷ 8 = ...

NO, THE ANSWER IS TOO HIGH.

I'LL TRY 11. 7 2 ÷ 1 1 =.....

THE ANSWER IS STILL MORE THAN 6

I'LL TRY 13.....

NOW THE ANSWER IS TOO LOW.

THEN IT MUST BE BETWEEN 11 AND 13.....

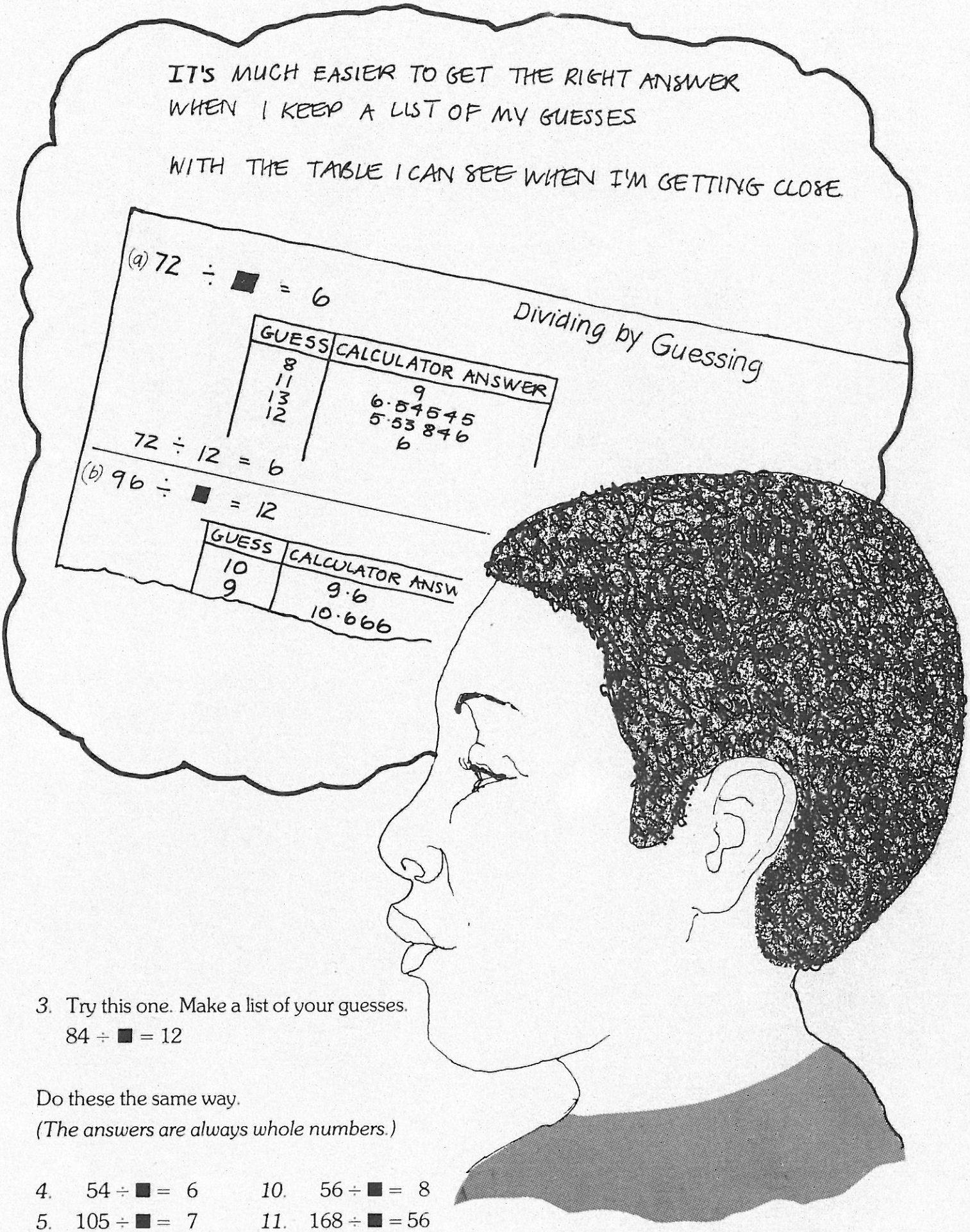
I'LL TRY 12....

AND I'M RIGHT!

Try these:

1. $64 \div \blacksquare = 4$
2. $104 \div \blacksquare = 13$

TURN OVER



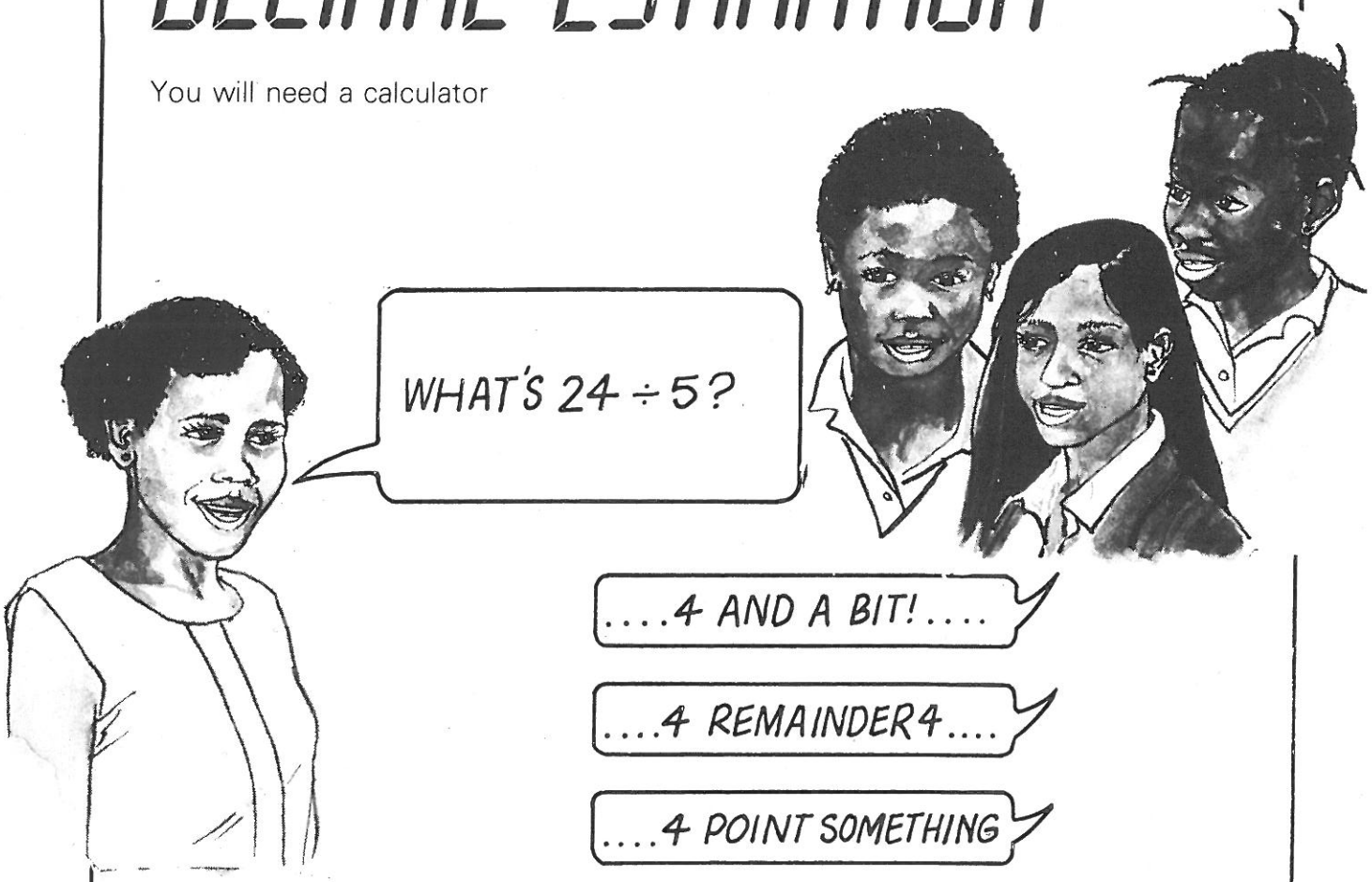
3. Try this one. Make a list of your guesses.
   $84 \div \blacksquare = 12$

Do these the same way.
(The answers are always whole numbers.)

4.	$54 \div \blacksquare = 6$	10.	$56 \div \blacksquare = 8$
5.	$105 \div \blacksquare = 7$	11.	$168 \div \blacksquare = 56$
6.	$52 \div \blacksquare = 13$	12.	$144 \div \blacksquare = 6$
7.	$81 \div \blacksquare = 9$	13.	$520 \div \blacksquare = 52$
8.	$75 \div \blacksquare = 15$	14.	$136 \div \blacksquare = 8$
9.	$90 \div \blacksquare = 15$	15.	$136 \div \blacksquare = 17$

DECIMAL ESTIMATION

You will need a calculator



1) Write down your guess for $24 \div 5$.

2) Use a calculator to find $24 \div 5$.

Turn over

3) Copy and complete this table.
For each question make a sensible guess first and then use a calculator.

	GUESS	CALCULATOR
17 ÷ 4		
15 ÷ 4		
17 ÷ 2		
25 ÷ 4		
101 ÷ 10		
7 ÷ 2		
16 ÷ 5		
19 ÷ 5		
18 ÷ 8		
19 ÷ 8		
23 ÷ 3		
29 ÷ 7		

4) The correct answer for the question on the front was 4.8

Check this answer by multiplying:

$$\begin{array}{r} 4.8 \\ \times\ 5 \\ \hline \\ \hline \end{array}$$

The answer should be 24. Why?

5) Check five of the answers in question (3) by multiplying.