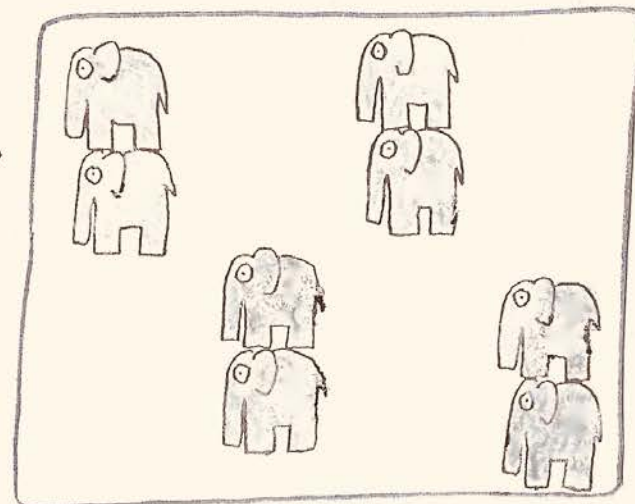# CHAPTER 1

DIVISION WITHOUT REMAINDERS
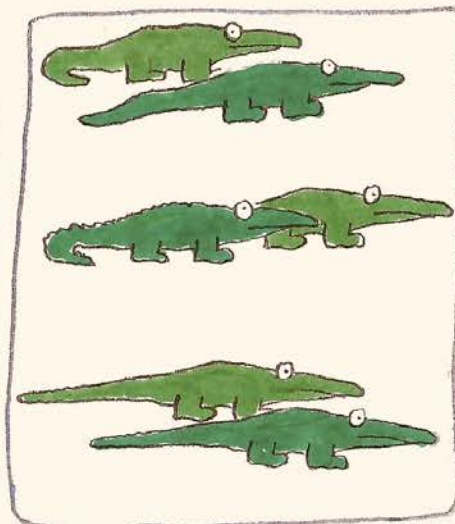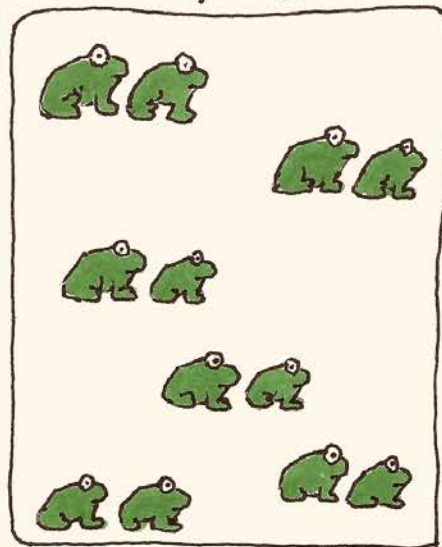
A REPEATED ADDITION METHOD

REMEMBER SKIP COUNTING

Count by 2's: 2, 4, 6, 8, 10...

How many elephants?
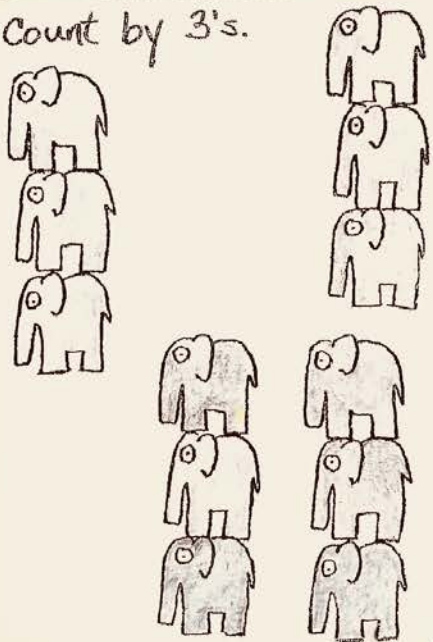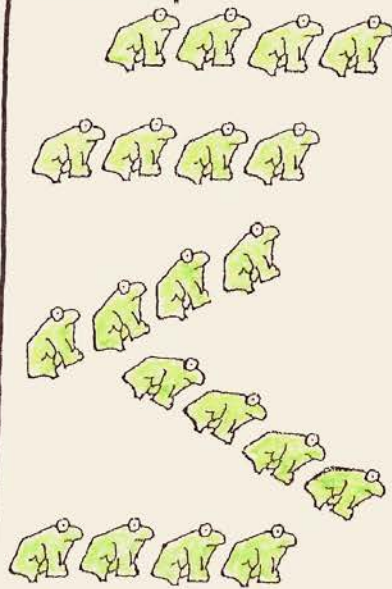
How many frogs?

How many alligators?

HOW MANY?

Use skip counting:

Count by 3's.

Count by 4's.

Count by 5's.
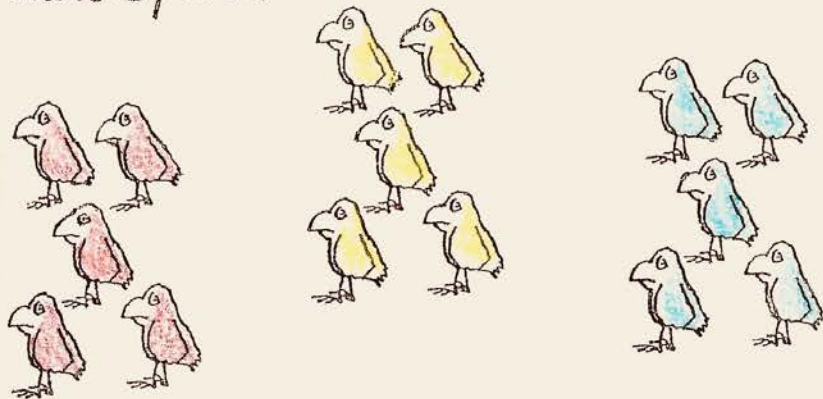
RINGS

Count by 3's. How many rings are in this picture?
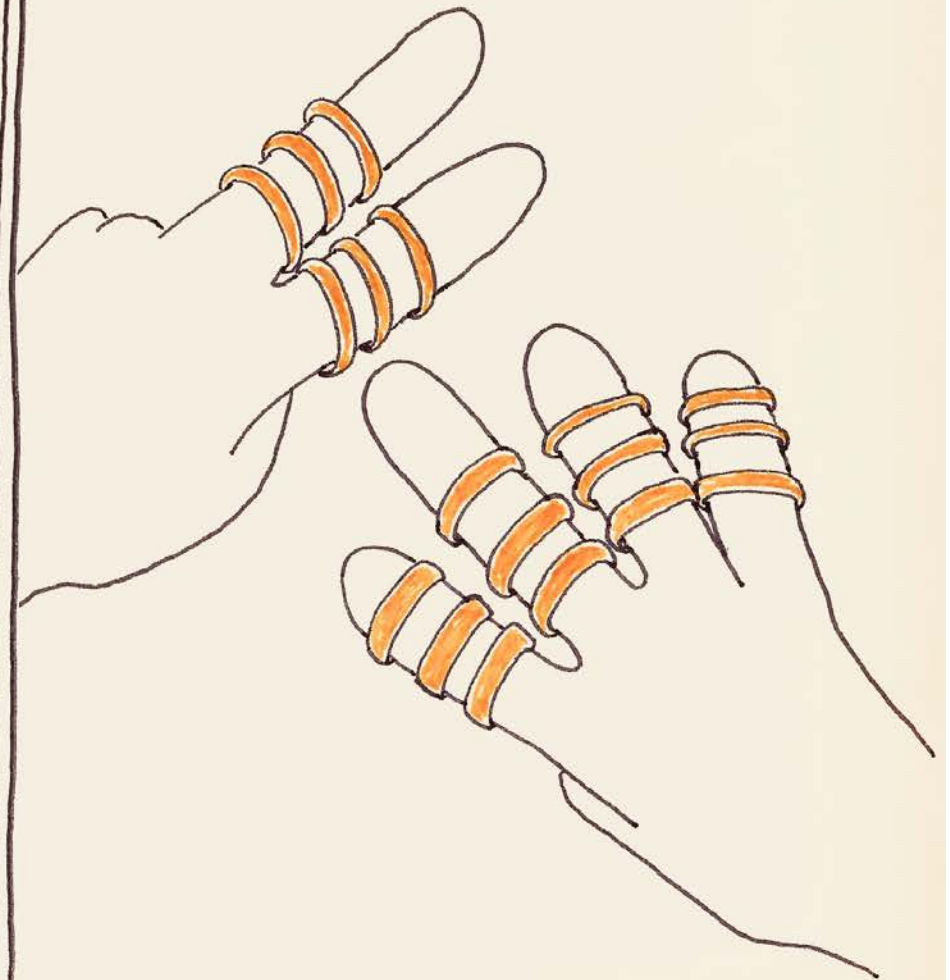
FINGER PAINTING

Draw 5 dots on each of your fingers.
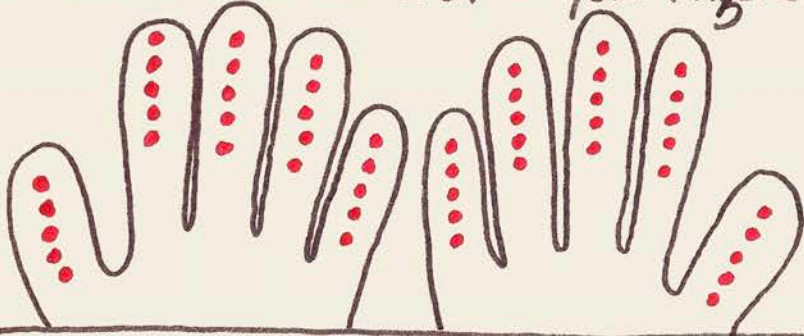
Then, close your hands.

Now, put out one finger at a time. Stop as soon as you can see 30 dots.
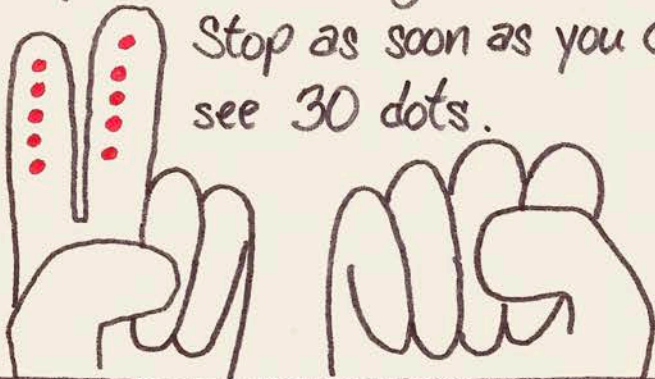
How many fingers did you put out?

MAKE-BELIEVE RINGS

Pretend that you have 2 rings on every finger.
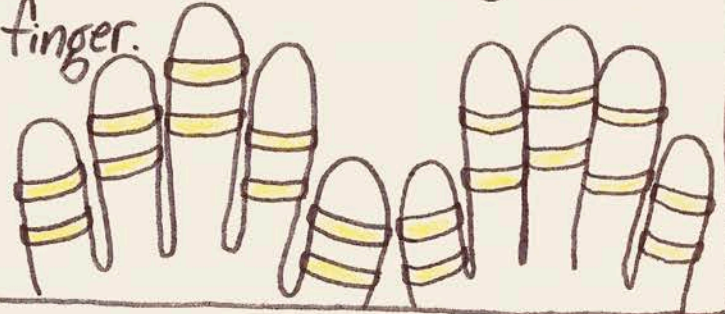
Then, close your hands.
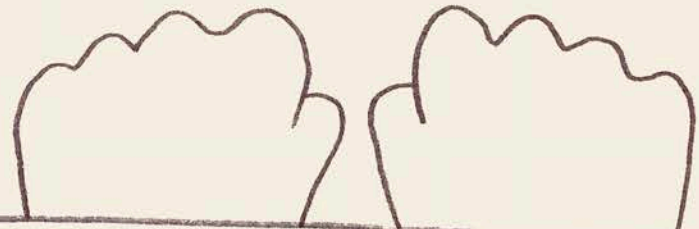
Now, put up one finger at a time. Stop when you have put up 14 make-believe rings.
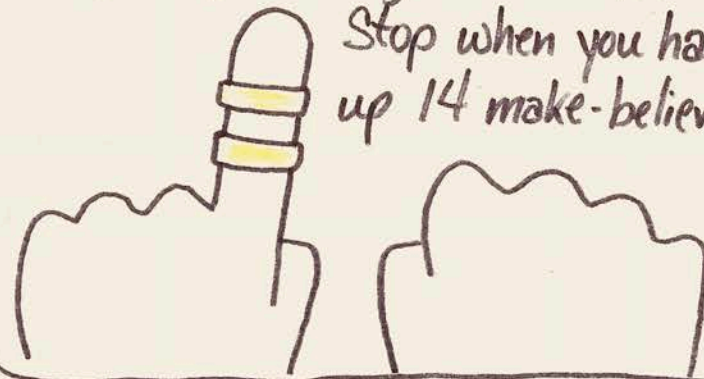
How many fingers did you use?

TALK TO YOUR FINGERS

Close your hands like this:

Count aloud by 5's. Each time you say a number, put out a finger:

5	10	15
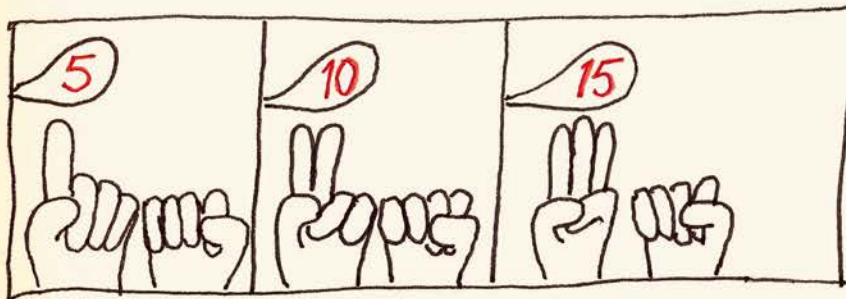
Keep counting until you say 40, then stop. How many fingers did you use?
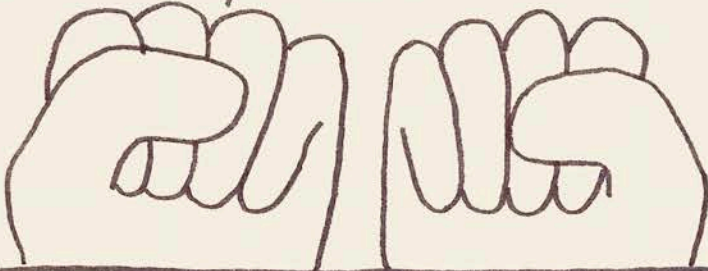
HOW MANY FINGERS?

Count by 3's as you put out each finger. ③	Stop just after you say 12. How many fingers did you use?
Count by 10's. ⑩	Stop after you say 60. How many fingers did you use?
This time, count by 2's. ②	Stop after you say 14. How many fingers did you use?
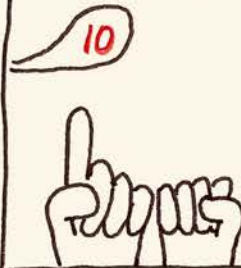
LEARN THE CODE

Read what the first code means, then try to figure out what the other codes mean. (But don't do what the codes tell you to do — that's what the <u>next</u> page is all about.)

THE CODE:	WHAT THE CODE MEANS:
$2\overline{)16}$	Count by 2's. Stop after you say 16.
$5\overline{)30}$	
$6\overline{)18}$	
$10\overline{)50}$	

DO WHAT THE CODE SAYS

Count out loud. Each time you say a number, put out a finger. How many fingers do you need to use?

1. $2\overline{)16}$

2. $5\overline{)30}$

3. $6\overline{)18}$

4. $10\overline{)50}$

5. $3\overline{)18}$

6. $4\overline{)12}$

7. $5\overline{)35}$

8. $10\overline{)90}$

A DIFFERENT CODE

Read what the first code means, then try to figure out what the other codes mean. (But don't do what the codes tell you to do — that's what the <u>next</u> page is all about.)

THE CODE:	WHAT THE CODE MEANS:
$12 \div 2$	Count by 2's. Stop after you say 12.
$15 \div 3$	
$25 \div 5$	
$18 \div 2$	

DO WHAT THE CODE SAYS

Count out loud. Each time you say a number, put out a finger. How many fingers do you need to use?

1. $12 \div 2$ 2. $15 \div 3$

3. $25 \div 5$ 4. $18 \div 2$

5. $80 \div 10$ 6. $45 \div 5$

7. $16 \div 4$ 8. $27 \div 9$

CHAPTER 2

DIVISION WITH REMAINDERS

A REPEATED SUBTRACTION METHOD

SUBTRACTION REVIEW
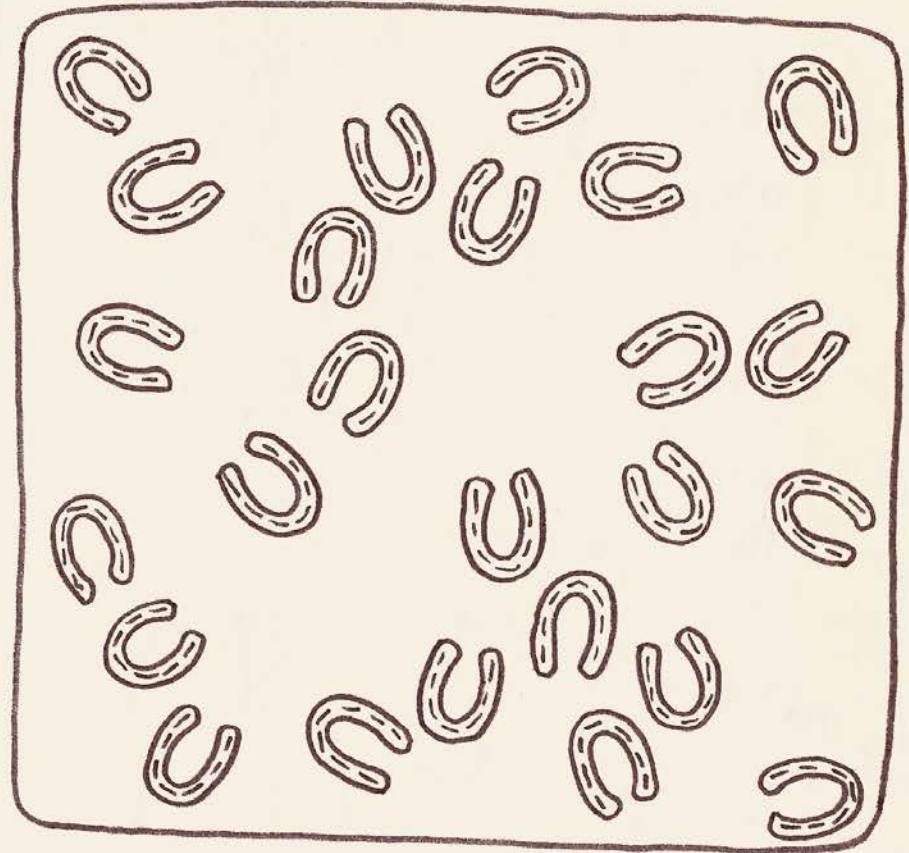
There are 25 horseshoes in this picture.

Use your hand to cover up 4 horseshoes.
Can you guess how many horseshoes are left?

REPEATED SUBTRACTION
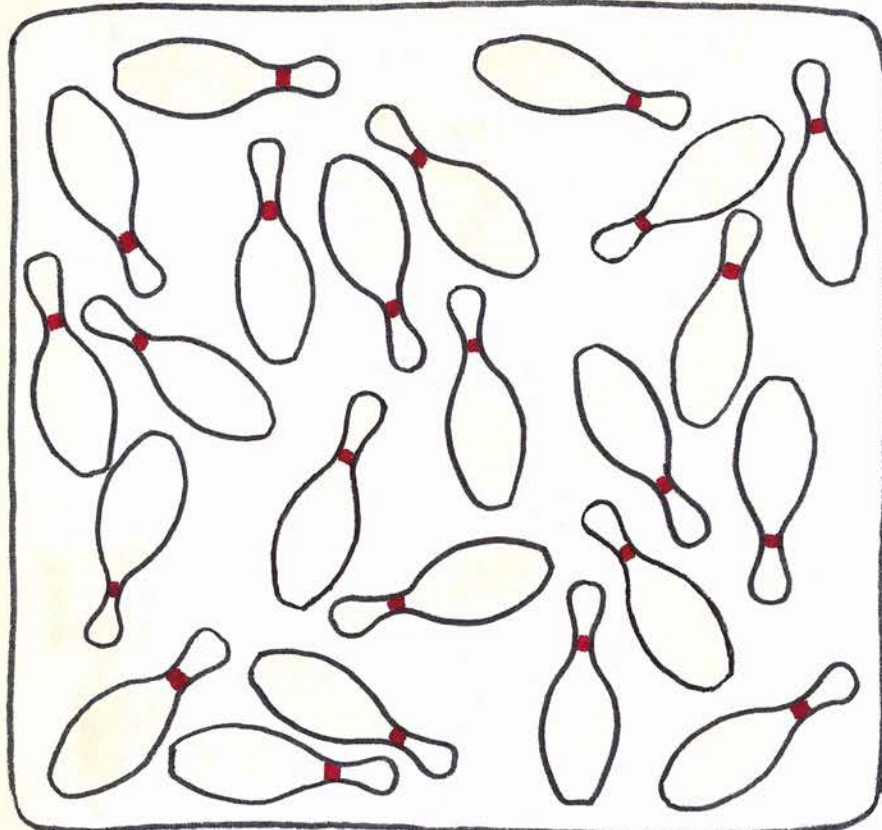
There are 23 bowling pins in this picture.

If you covered 10, how many would be left?
If you then covered 10 more, how many would be left?

A NUMBER PUZZLE

Try to do all of this in your head. Think of this number:

6

Now take away 2.
Take away 2 again.
Take away 2 more.
What number did you get?

WITHOUT PENCIL AND PAPER

Think of this number:

7

Take away 2. Take away 2 again and again. Keep going until you come to a number that is so small you can't take away 2.

What number was in your head when you had to stop?

USE PAPER AND PENCIL.

Write this number at the top of a sheet of paper:

52

Then take away 10, like this:

```
52
-10
42
```

Take away 10 again:

```
52
-10
42
-10
32
```

Keep taking away 10. Don't stop until you come to a number that's so small you can't take away 10.

What was the number that was so small you had to stop?

A DIFFERENT QUESTION

Write this number:

37

Take away 12 again and again, until you get to a number that's so small you have to stop.

How many times were you able to take away 12?

MORE SUBTRACTION

Start with this number: **66**

Take away 21 as many times as you can.

How many times were you able to subtract?
What number was so small you had to stop?

Start with this number: **96**

Take away 32 as many times as you can.

How many times were you able to subtract?
What number was so small you had to stop?

THE CODE

Read what the first code means, then try to figure out what the other codes mean. (But don't do what the codes tell you to do — that's what the _next_ page is all about.)

THE CODE:	WHAT THE CODE MEANS:
$20\overline{)65}$	Start with 65. Take away 20 as many times as you can.
$12\overline{)49}$	
$4\overline{)13}$	
$3\overline{)17}$	

DO WHAT THE CODE SAYS

How many times can you subtract? What number is so small you have to stop?

1. $20\overline{)65}$ 2. $12\overline{)49}$

3. $4\overline{)13}$ 4. $3\overline{)17}$

5. $11\overline{)57}$ 6. $5\overline{)20}$

7. $8\overline{)18}$ 8. $30\overline{)98}$

CHAPTER 3

DIVISION WITHOUT REMAINDERS

A TRIAL-AND-ERROR METHOD USING MULTIPLICATION

WHICH WEIGHS MORE?
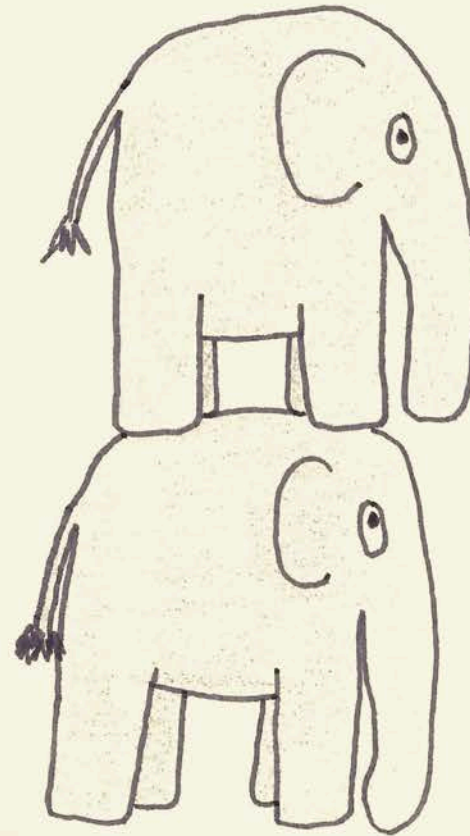
Which weighs more — 2 elephants or 2 pineapples?

BALLOONS AND BOWLING BALLS
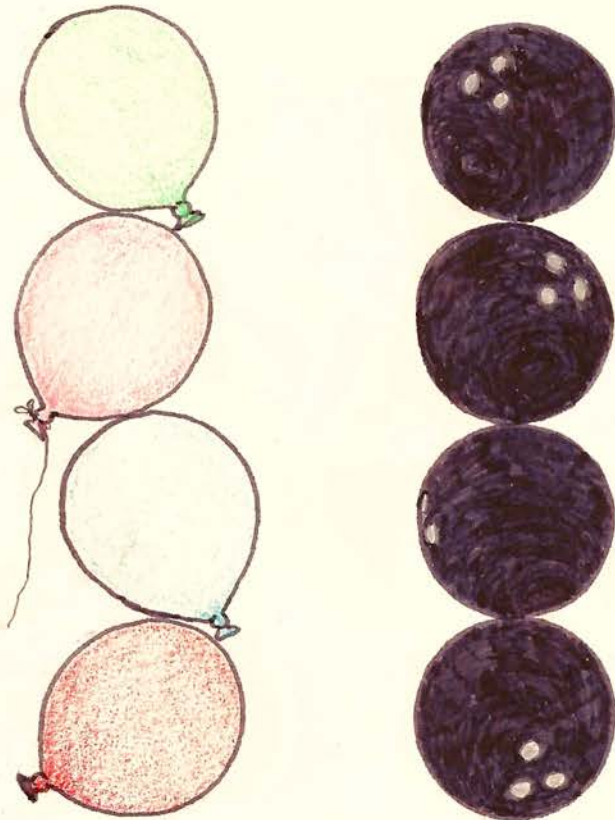
Which do you think weighs more —
4 balloons or 4 bowling balls?

DO NOT ADD

Don't add. Just decide which problem will have the largest answer:

2	3	4	10	21	53	99
+2	+3	+4	+10	+21	+53	+99

Don't add. Just decide which problem will have the largest answer:

2	3	4	10	21	53	99
2	3	4	10	21	53	99
+2	+3	+4	+10	+21	+53	+99

DO NOT MULTIPLY

Don't multiply. Just decide which problem will have the largest answer:

$$\begin{array}{cccccc} 4 & 5 & 6 & 10 & 30 & 86 \\ \times 2 & \times 2 & \times 2 & \times 2 & \times 2 & \times 2 \end{array}$$

Be careful — this time they're mixed up. Which problem will have the largest answer?

$$\begin{array}{cccc} 15 & 4 & 96 & 5 \\ \times 3 & \times 3 & \times 3 & \times 3 \end{array}$$

PICK A NUMBER

Pick a number — any number from 1 to 30. Write your number on a piece of paper. Then multiply your number by

2

What answer did you get?

Now try to do this page again. But this time, try to get a _larger_ answer than you got last time.

SMALLER

Pick a number — any number from 1 to 30. Write your number on a piece of paper. Then multiply your number by

10

What answer did you get?

Now do this page again. This time, try to get a <u>smaller</u> answer than you got last time.

HOW TO SPEND A RAINY AFTERNOON

Pick a number from 1 to 100. Multiply your number by

2

What answer did you get?

Do this page again and again until you get **130** as your answer.

HERE'S A HINT: Before you pick a new number, try to decide if your <u>last</u> number was too large or too small.

TWO HOURS OF HARD WORK

Pick a number from 1 to 100. Multiply your number by

5

Keep picking different numbers until you get this answer:

170

What number turned out to be the right one?

MORE OF THE SAME

Multiply some numbers by

3

Try to get this answer: **132**

Which number finally worked?

Multiply some numbers by

4

Try to get this answer: **328**

What number finally worked?

THE CODE

Read what the first code means, then try to figure out what the other codes mean. (But don't do what the codes tell you to do — that's what the <u>next</u> page is all about.)

THE CODE: WHAT THE CODE MEANS:

$2\overline{)150}$ Multiply some numbers by 2. Try to get this answer: 150.

$3\overline{)123}$

$4\overline{)128}$

$3\overline{)180}$

USE THE CODE

Try to do what the code says to do. In each problem, what number finally works?

1. $2\overline{)150}$ 2. $3\overline{)123}$

3. $4\overline{)128}$ 4. $3\overline{)180}$

5. $5\overline{)100}$ 6. $2\overline{)112}$

7. $4\overline{)88}$ 8. $11\overline{)506}$

A DIFFERENT CODE

Read what the first code means, then try
to figure out what the other codes mean.
(But don't do what the codes tell you to
do — that's what the next page is all about.)

THE CODE:	WHAT THE CODE MEANS:
$110 \div 2$	Multiply some numbers by 2. Try to get this answer: 110.
$102 \div 3$	
$325 \div 5$	
$190 \div 2$	

USE THE CODE

Try to do what the code says to do.
In each problem, what number finally works?

1. $110 \div 2$ 2. $102 \div 3$

3. $325 \div 5$ 4. $190 \div 2$

5. $60 \div 4$ 6. $176 \div 2$

7. $682 \div 11$ 8. $840 \div 20$

CHAPTER 4

DIVISION WITH
REMAINDERS

A COMBINED
MULTIPLICATION-AND-
SUBTRACTION METHOD

ADDITION REVIEW

Add together all the numbers in the picture. What number do you get?

1

3

2

5

4
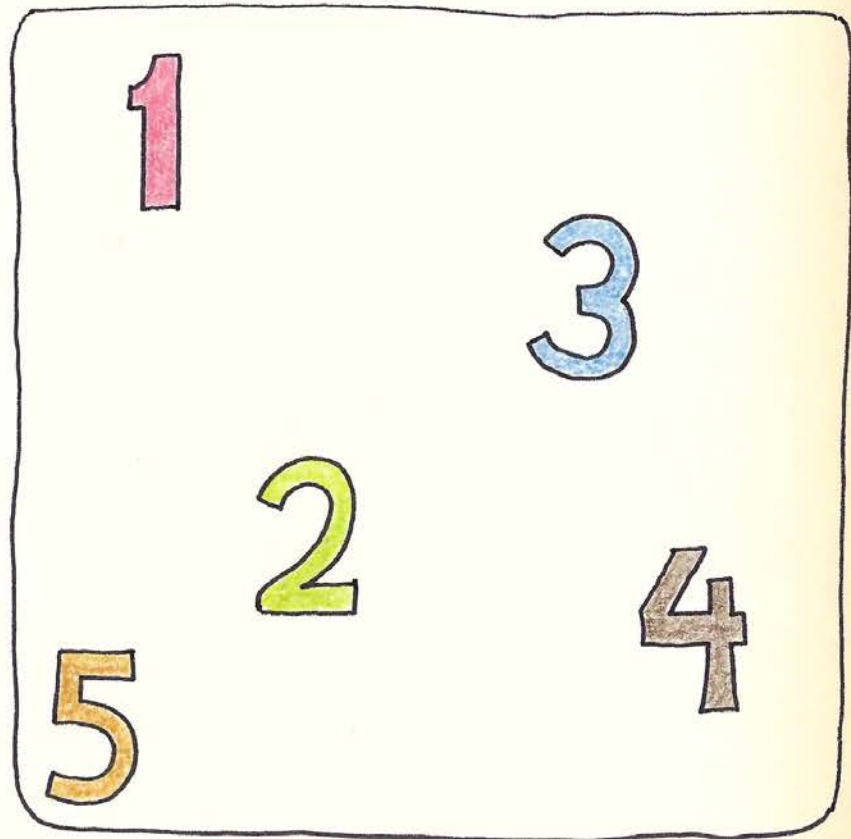
Try this: Cover the 5 with your hand. Now add the other numbers together. What number do you get?

SUBTRACTION REVIEW

5   1   1   3
            4
      3
4   1
      1
  2   5
        3
    5   1
3   4
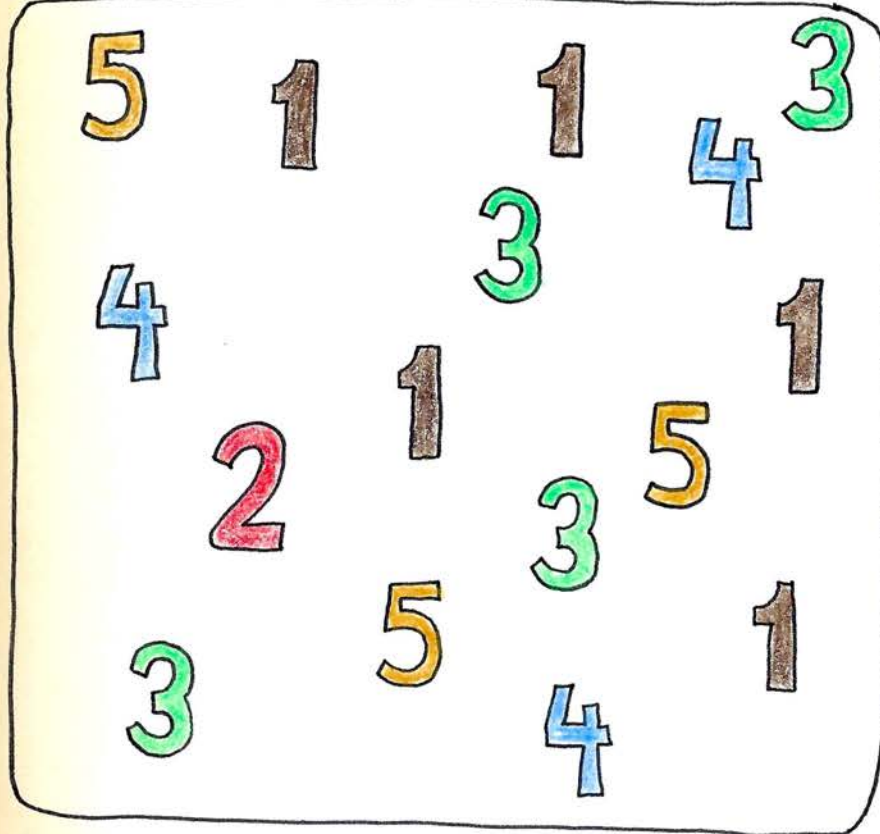
Please take our word for it—all the numbers in this picture add up to 46.

Cover the 2. Guess what you'd get if you added the other numbers together.

MULTIPLICATION REVIEW

How much is 2 6's?

_____

How much is 3 5's?

_____

How much is 10 3's?

_____

How much is 5 4's?

_____

How much is 10 8's?

MULTIPLY AND SUBTRACT

1 3 2 2
2 1 2 1
6 4 5 2
3 7 4 7
2 5 2 6 3
5 1 2 1
3 3 1
1 5 4 2 1
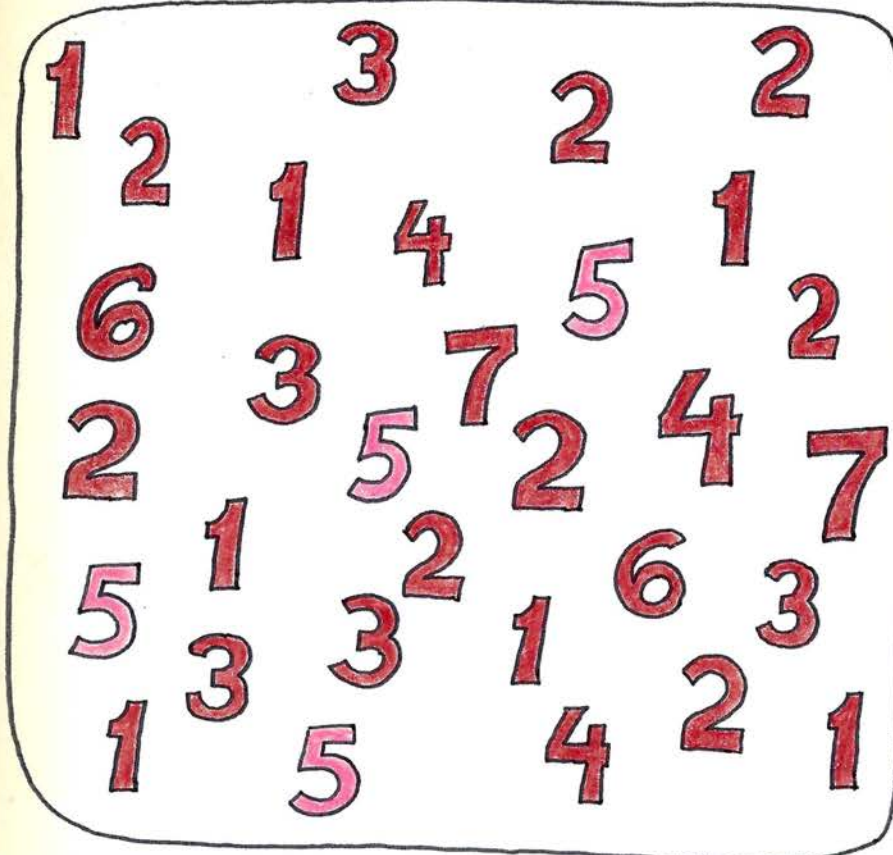
The numbers in this picture add up to 96.

If you covered 4 **5**'s, what would the other numbers add up to?

MORE OF THE SAME

3 3 3 3
3 3 3 3
3 3 3 3 3
3 3 3 3 3
3 3 3 3
3 3 3 3
3 3 3 3
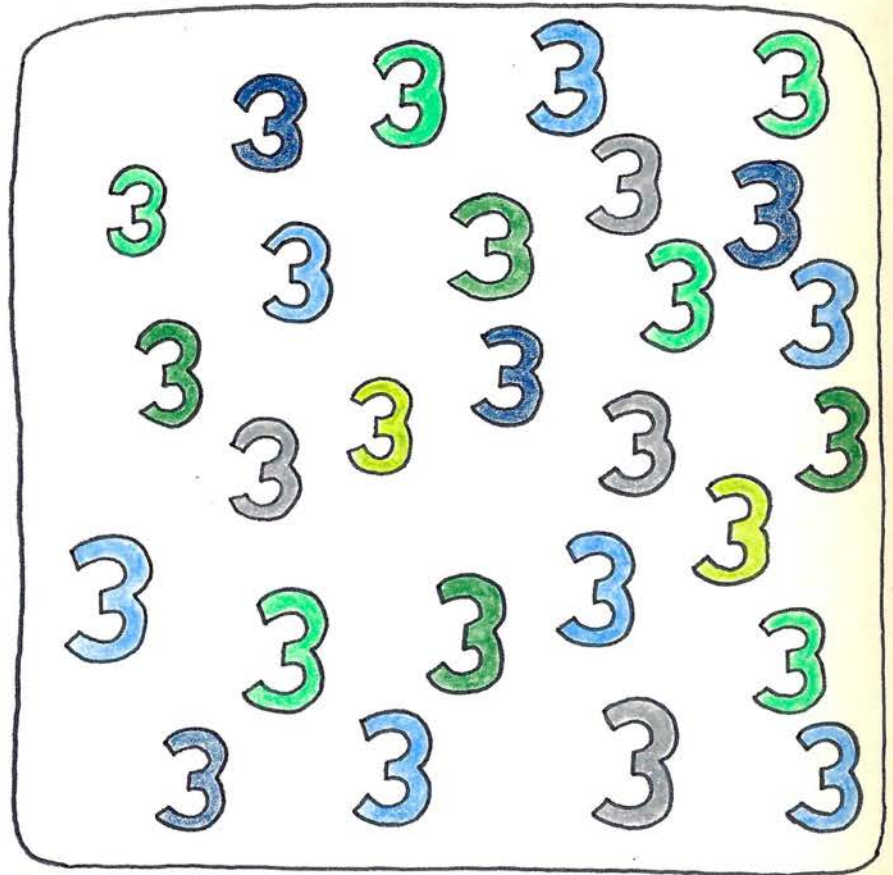
The numbers in this picture add up to 81.

If you covered 10 **3**'s, what would the other numbers add up to?

A DIFFERENT QUESTION
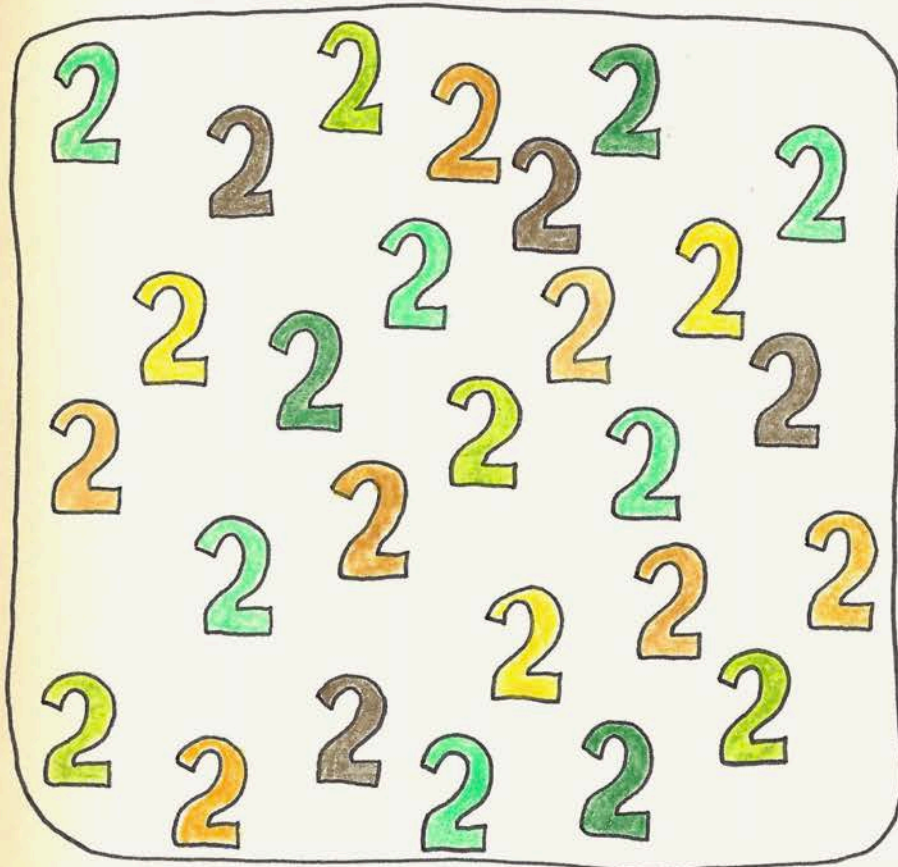
The numbers in this picture add up to 54. How much is 30 **2**'s? Do you think it's possible that there are exactly 30 **2**'s in the picture?

MORE OR FEWER
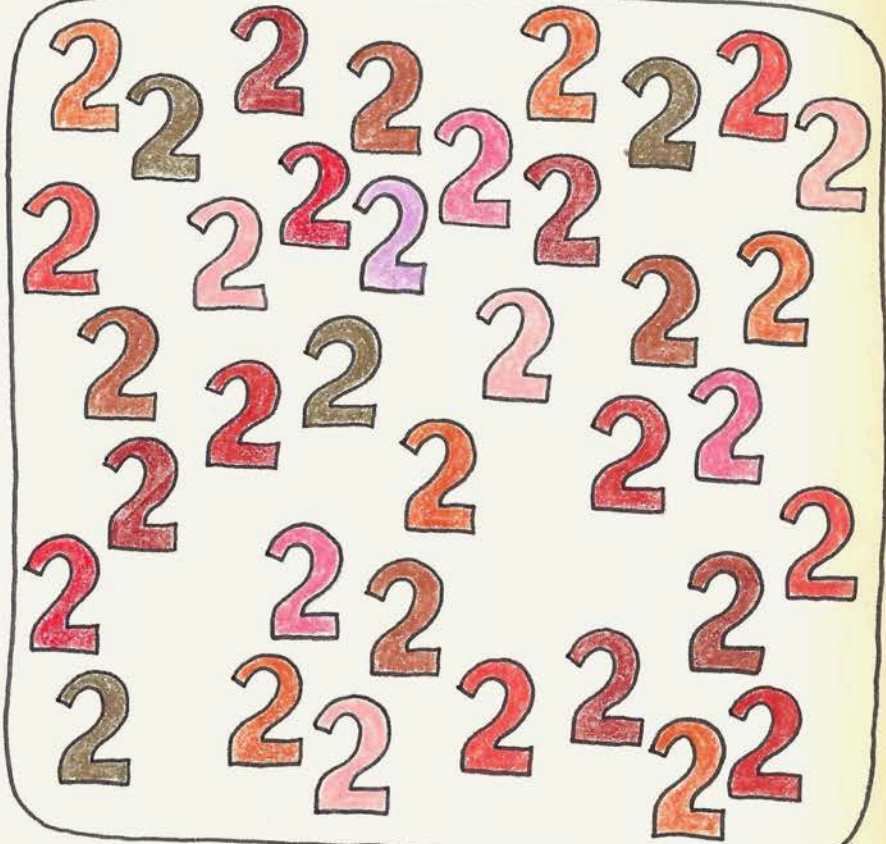
All the numbers in this picture add up to 72. How much is 40 **2**'s? Do you think there are more than 40 **2**'s or fewer than 40 **2**'s in the picture?

WHAT'S LEFT?
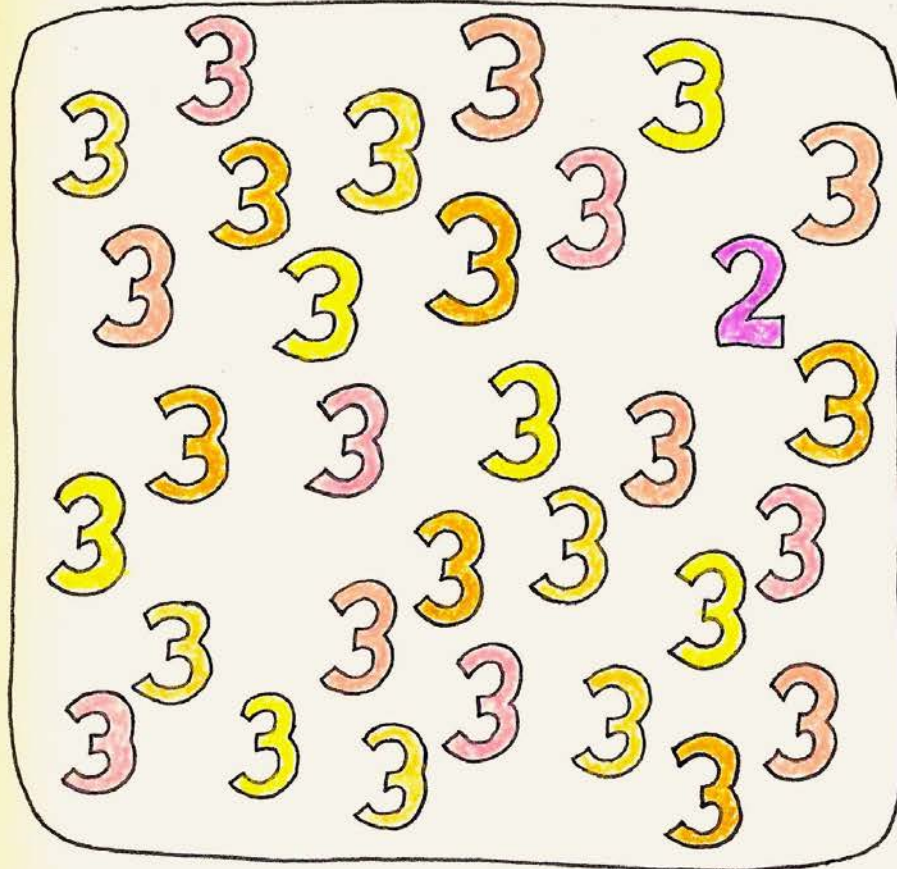
The numbers in this picture add up to 92.

If you covered 30 3's, what would be left? Look carefully at the picture. See if you can find what would be left.

USE A SHEET OF PAPER

Write this number:

93

Then, put down your pencil and think.

How much is 10 7's?

Pick up your pencil and take away 10 7's from the 93.

What number did you get?

TAKE AWAY

Write this number:

37

Then, take away 5 **5**'s.

How much is left?

Write this number:

79

Then, take away 8 **8**'s.
How much is left?

IS IT POSSIBLE?

Here's something to think about:

How much is 10 **5**'s?

Do you think it's possible

to take 10 **5**'s away

from 42?

Do you think it's possible

to take 6 **5**'s away

from 42?

IT'S UP TO YOU

Write this number:

86

Decide how many **5**'s you want to take away — 2 **5**'s, 10 **5**'s, 5 **5**'s, 1 **5** — any number of **5**'s you want.

Subtract.   What number do you get?

TAKE AWAY SOME MORE FIVES

Write this number:

98

Take away some **5**'s — any number of **5**'s you want. Do the subtraction.

Then, take some **5**'s away from your answer. Next, take some **5**'s away from _that_ answer.   Keep going.

The numbers will tell you when to stop.

LEFT, RIGHT, LEFT, RIGHT

Draw a line down the middle of a sheet of paper:

On the left side of the paper, write **78**, and then take away some **2**'s.

On the right side of the paper, tell how many **2**'s you just took away.

On the left side, take some **2**'s away from your answer.

On the right side, tell how many **2**'s you took away. Keep going like this.

DON'T THROW YOUR PAPER AWAY!

ADDING IT ALL UP

Look at the paper you used when you did the last page. We hope it looks something like this:

$$
\begin{array}{rl}
78 & \\
-20 & \quad 10 \\
\hline
58 & \\
-40 & \quad 20 \\
\hline
18 & \\
-2 & \quad 1 \\
\hline
16 & \\
-14 & \quad 7 \\
\hline
2 & \\
-2 & \quad 1 \\
\hline
0 &
\end{array}
$$

Remember that the numbers on the right-hand side of your paper tell how many **2**'s you took away. Add these numbers together.

Altogether, how many **2**'s did you take away?

TWO QUESTIONS

Draw a line down the middle of a sheet of paper:

ON THE LEFT SIDE: Write **89**, then take away some **3**'s. Keep taking away **3**'s.

ON THE RIGHT SIDE: Tell how many **3**'s you took away.

When you're finished, answer these questions:

Altogether, how many **3**'s did you take away? On the left side of your paper, what was the number that was so small you had to stop?

ONE MORE TIME

Draw a line down the middle of a sheet of paper:

ON THE LEFT SIDE: Write **97**, then take away some **4**'s. Keep taking away **4**'s.

ON THE RIGHT SIDE: Tell how many **4**'s you took away.

When you're finished, answer these questions:

Altogether, how many **4**'s did you take away? What was the number that was so small you had to stop subtracting?

THE CODE

Read what the first code means, then try to figure out what the other codes mean. (But don't do what the codes tell you to do — that's what the <u>next</u> page is all about.)

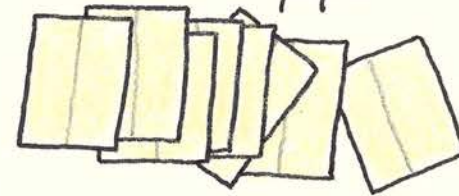| THE CODE:	WHAT THE CODE MEANS:
$2\overline{)85}$	Find out how many 2's you can take away from 85.
$3\overline{)76}$	
$5\overline{)68}$	
$10\overline{)82}$	

USE THE CODE

Try to do what the code tells you to do. Use a different sheet of paper for each problem:

1. $2\overline{)85}$ 2. $3\overline{)76}$

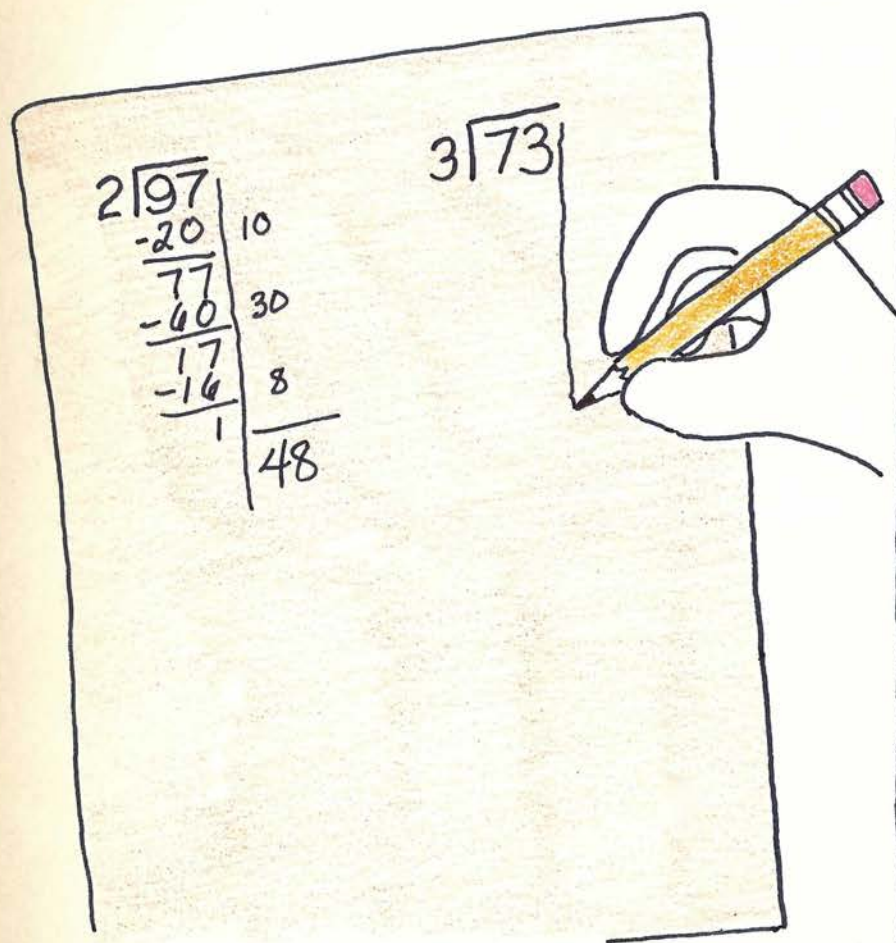3. $5\overline{)68}$ 4. $10\overline{)82}$

5. $8\overline{)100}$ 6. $7\overline{)108}$

7. $5\overline{)135}$ 8. $11\overline{)159}$

TRY TO SAVE PAPER

There are eight problems on the next page. Try to do all of them on just one piece of paper. (You can use both sides.)

$$2\overline{)97}$$
$$-20 \quad | \quad 10$$
$$\overline{77}$$
$$-60 \quad | \quad 30$$
$$\overline{17}$$
$$-16 \quad | \quad 8$$
$$\overline{1} \quad | \quad \overline{48}$$

$$3\overline{)73}$$

ALL ON ONE PIECE OF PAPER

Copy each problem. Draw a line. Then try to do what the code says.

1. $2\overline{)97}$ 2. $3\overline{)73}$

3. $10\overline{)432}$ 4. $10\overline{)573}$

5. $11\overline{)379}$ 6. $11\overline{)775}$

7. $12\overline{)363}$ 8. $21\overline{)888}$