

SMILE WORKCARDS

Number and Algebra Mixed Pack Three

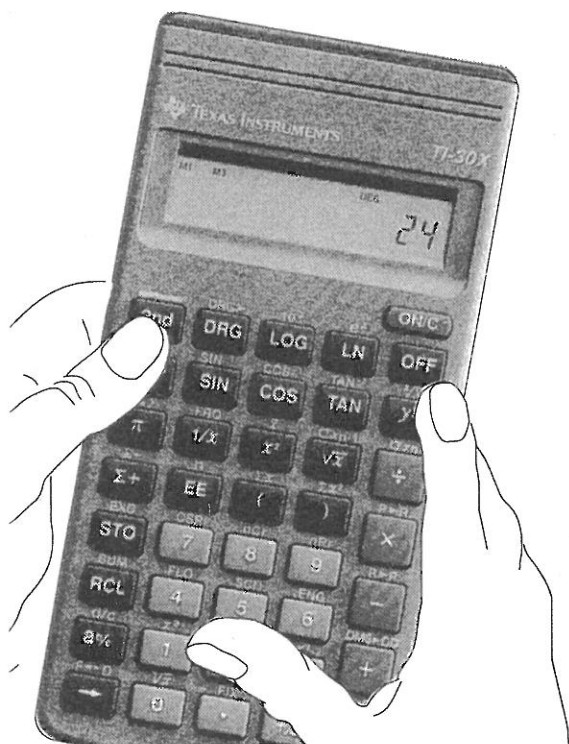
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Calculator Brackets

You will need a scientific calculator.

You may want to use Worksheet 2022a to record your work.



Calculation $(1 + 2 + 3) \times 4 = 6 \times 4 = 24$

Key presses $(1 + 2 + 3) \times 4 =$

Calculation $\frac{1+4}{2+3} = \frac{5}{5} = 1$

Key presses $(1 + 4) \div (2 + 3) =$

Find ways of making all the whole numbers from 1 to 25.

- Use the numbers 1, 2, 3 and 4 once only and in any order.
- You will need to use brackets in some of your calculations.
- Each set of key presses should use the $=$ button once only.
- Record each of your calculations and the key presses used.

Use Brackets!

An activity for 2 people in which each person makes a cross-number for the other person to solve.

Each person will need a copy of this worksheet.

- Write a single digit in each empty square of the top puzzle. Do not let the other person see what you write because these numbers will be her answers.
- Write a clue for each answer (see 1 across for an example).
- Cut this sheet into two and give the section below to the other person. Don't let her see the answers until she has completed the puzzle.

1 2	2 9		3 7	4 5
5		6	2	
	7		0	
8				9
10			11	

Across

- $(5 \times 9) - (8 \times 2)$
- $3 \times (36 - 11)$
- _____
- _____
- _____
- _____

Down

- _____
- _____
- $(4 + 5) \times (16 \div 2) \times 10$
- _____
- _____
- _____
- _____
- _____
- _____

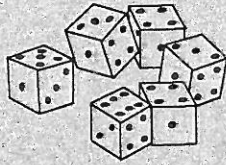
1	2		3	4
5		6		
	7			
8				9
10			11	

Sum Dice

You will need **six dice** and the number cards from Smile Cut-out sheet 2154a.

The aim is to make numbers, using the scores of the six dice and +, -, x, ÷ and brackets ().

Example



35

You must use
ALL the dice

$$\begin{array}{ccccccc} \boxed{5} & \times & \left(\boxed{1} - \boxed{1} \right) & \times & \left(\boxed{7} + \boxed{7} - \boxed{1} \right) & = & 35 \\ 5 & \times & 1 & \times & 7 & = & 35 \end{array}$$

$$\begin{array}{ccccccc} \left(\boxed{5} + \boxed{5} \right) & \times & \left(\boxed{7} + \boxed{7} \right) & \div & \left(\boxed{7} - \boxed{1} \right) & = & 35 \\ 10 & \times & 7 & \div & 2 & = & 35 \end{array}$$

A Puzzle

For one or two people.
Throw all six dice once.

Make
all the numbers
from
1 to 10.

A Game

For two or more players.
■■■
Turn over a number card.

Throw all 6 dice.

■■■
Every player
aims to make the number on the card
with the dice scores.

The player
who makes the number first
keeps the card.

■■■
Record your answers.
Keep going until all the cards are
used up.



36

12

40

8

100

19

18

1

49

7

37

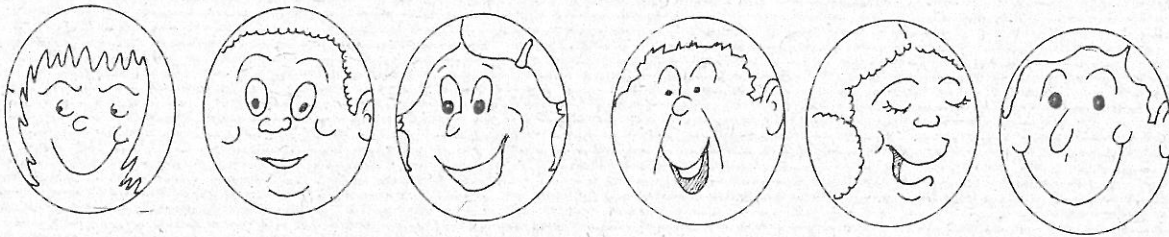
10

Missing digits

Each empty box in the calculations below represents a missing digit. Use a calculator to help you find the missing digits. (*One is impossible!*)

1. $93 \times 8 \square = 7 \square \square 8$
2. $83 \square \times \square 9 = 41013$
3. $8013 - \square \square \square \square = 3875$
4. $\square \square \square \square \div 23 = 46$
5. $\square \square 6 \times 84 \square = 232668$
6. $3 \square \square \times \square 7 = 14171$
7. $3 \square \square 4 \div 8 \square = 48$
8. $9805 \div 8 \square = \square 2$
9. $23 \times 3 \square \times \square 7 = 13294$
10. $\square 3 \times \square \times 7 \times 34 = 38318$

MILLIONS



You will need a calculator
This pack is for a small group
Compare your answers and check
that they make sense

Contents: 0903A-H

You will need an Atlas

A Long Walk

A man walks a million paces
and each pace is approximately 80cm.
How far does he walk?
If he walks in a straight line,
can he do it in England?
What about in Great Britain?
Which countries in Europe
can he do it in?



A Million Strokes

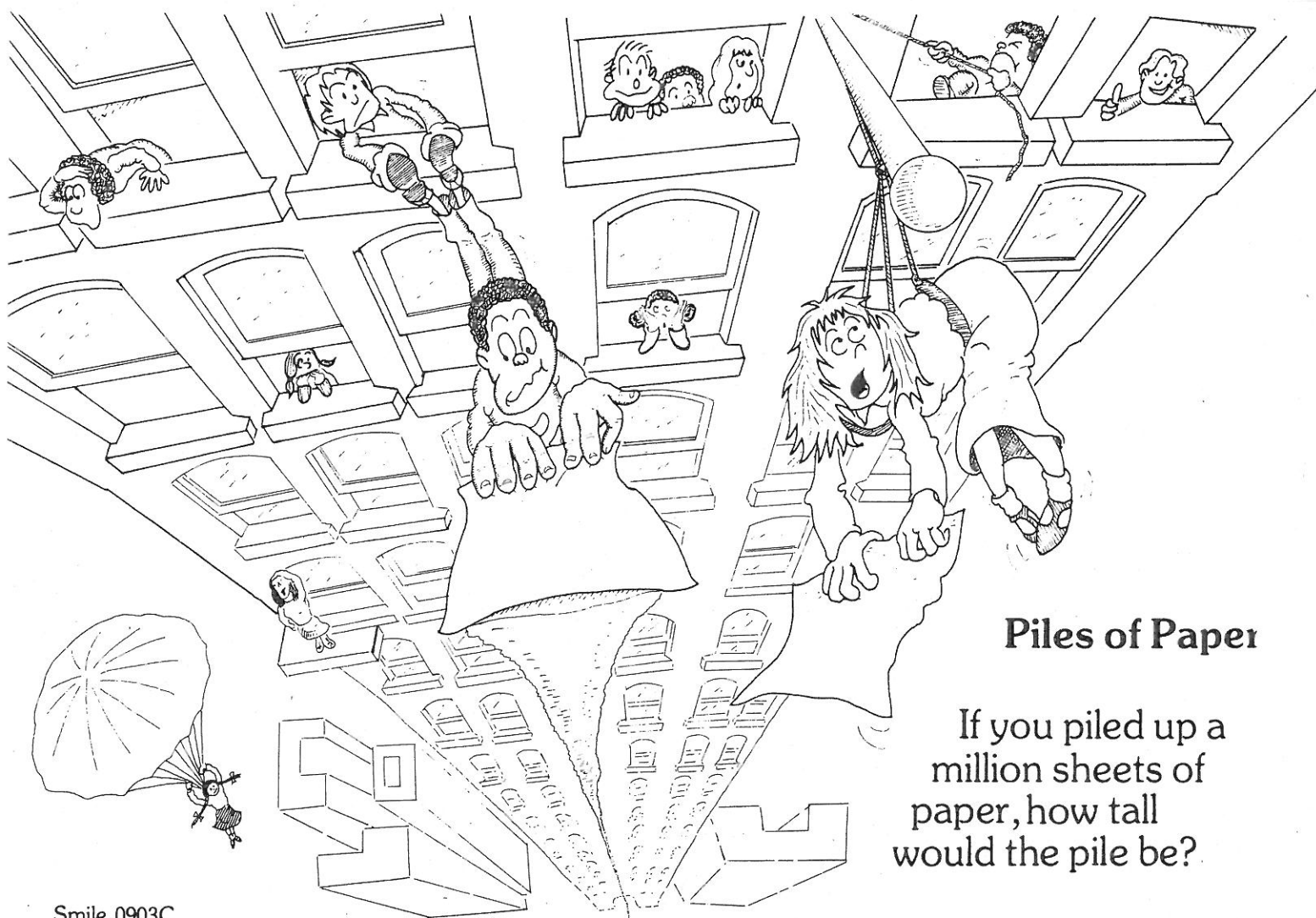
If you make a pencil stroke on paper every second, how long will it take you to make a million strokes?

(Imagine that you are working night and day without rest)

How long would it take if you worked 8 hours a day and only Monday to Friday?



Smile 0903B



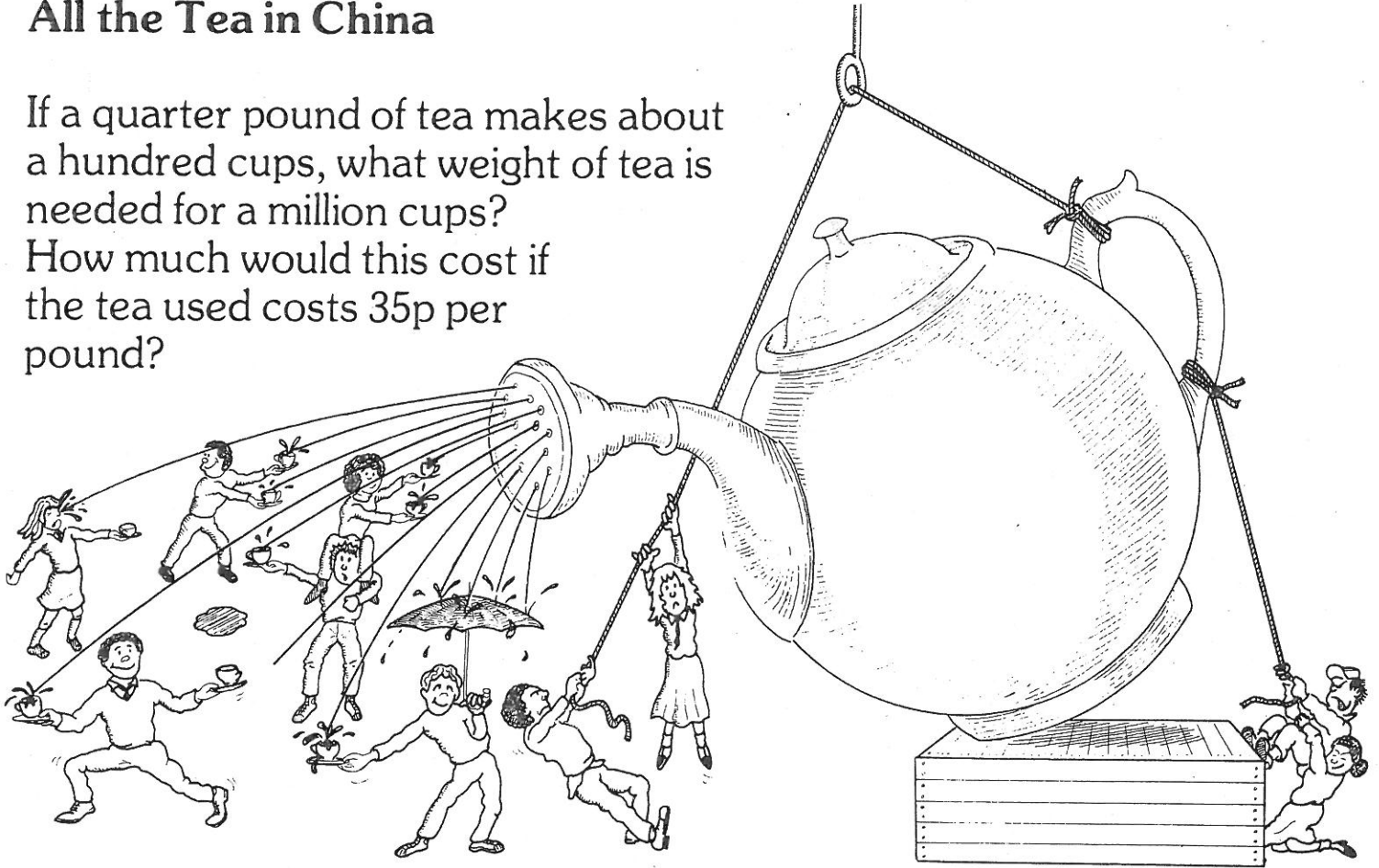
Piles of Paper

If you piled up a million sheets of paper, how tall would the pile be?

Smile 0903C

All the Tea in China

If a quarter pound of tea makes about a hundred cups, what weight of tea is needed for a million cups? How much would this cost if the tea used costs 35p per pound?



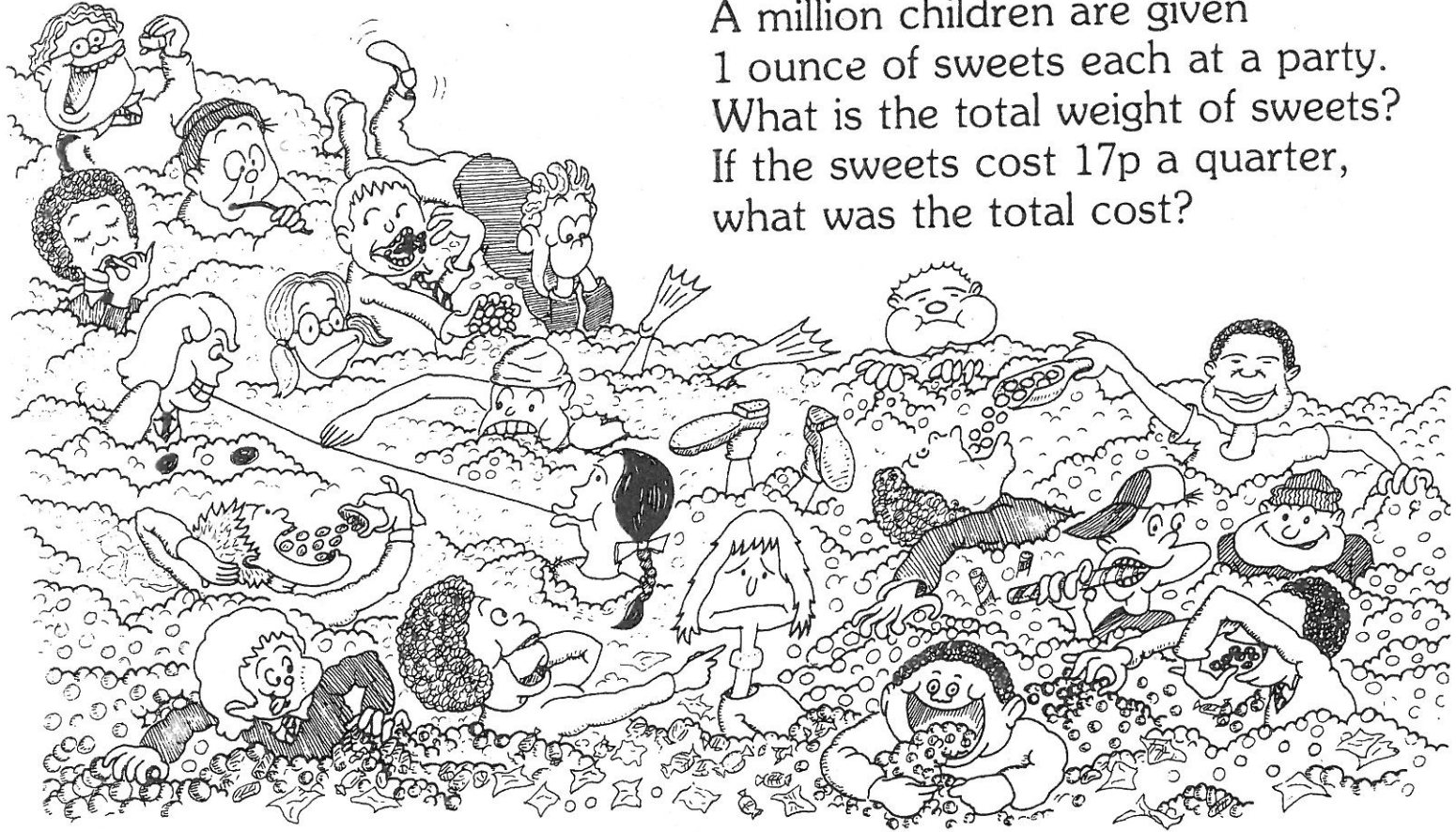
Ages and Ages

Was Julius Ceaser born more or less than a million days ago? How long is a million days? What was the date a million days ago? What will be the date a million days from now?



Sweets All Round

A million children are given 1 ounce of sweets each at a party. What is the total weight of sweets? If the sweets cost 17p a quarter, what was the total cost?

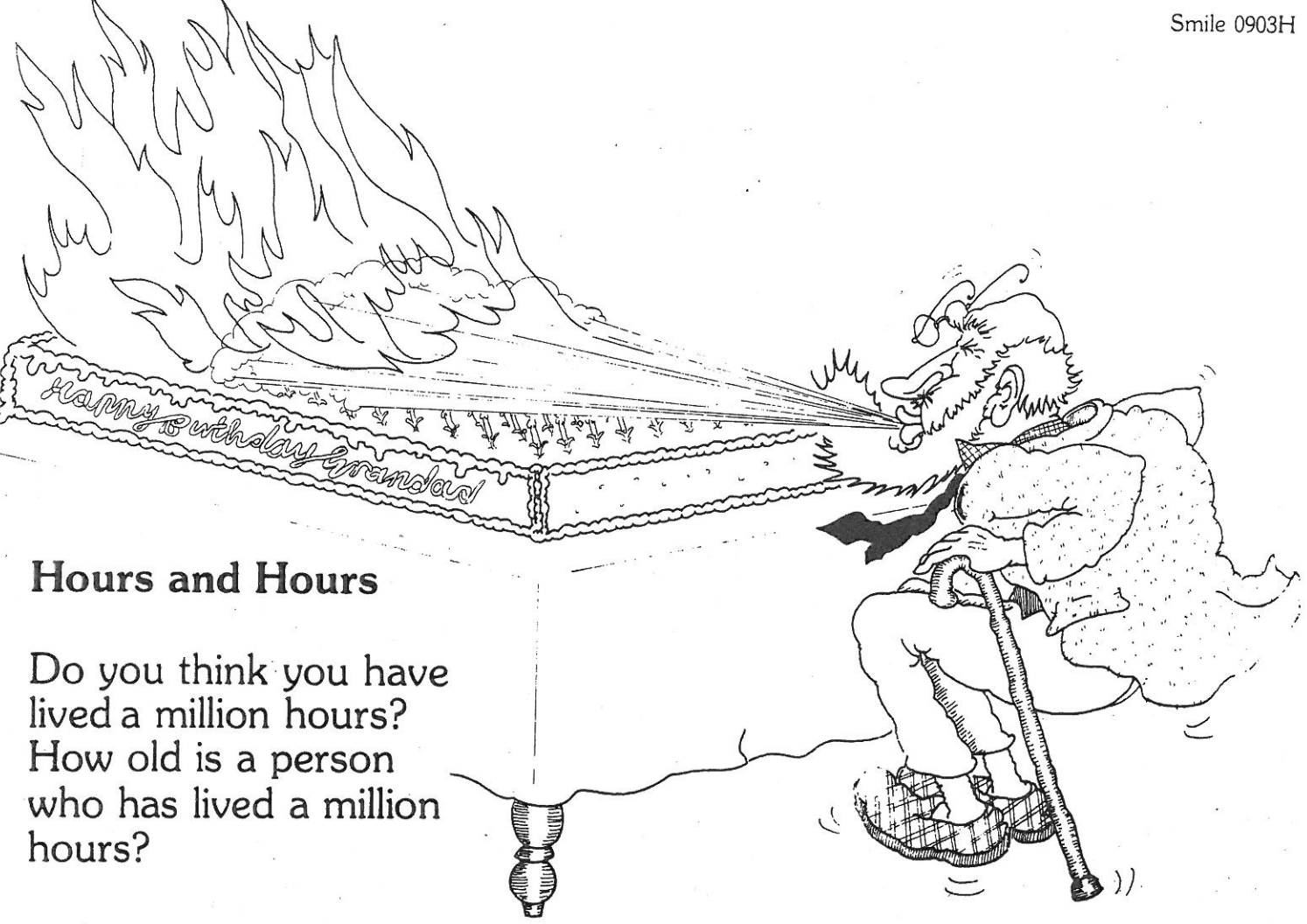


Smile 0903G

The Size of a Book

Take any novel from the library. Do you think it contains more or less than a million words? Find, approximately, how many words it does contain. How many pages would there be in the book if it did contain a million words?





Hours and Hours

Do you think you have lived a million hours?
How old is a person who has lived a million hours?

Smile 2022

FEWEST KEYS

You may find it more interesting if you work on this activity with someone else.

Do these calculations on a scientific calculator pressing as few keys as possible.

Record your key presses on Worksheet 2022a.

a) $\frac{2.5}{5.2 + 3.6}$

b) $(5.81 + 4.6) \times (4.1 + 3.62)$

c) $(4.2 + 3.8) \div (2.6 - 1.34)$

d) $\frac{1}{\frac{1}{2} + \frac{1}{7}}$

e) $\frac{1}{\sqrt{256 + 381}}$

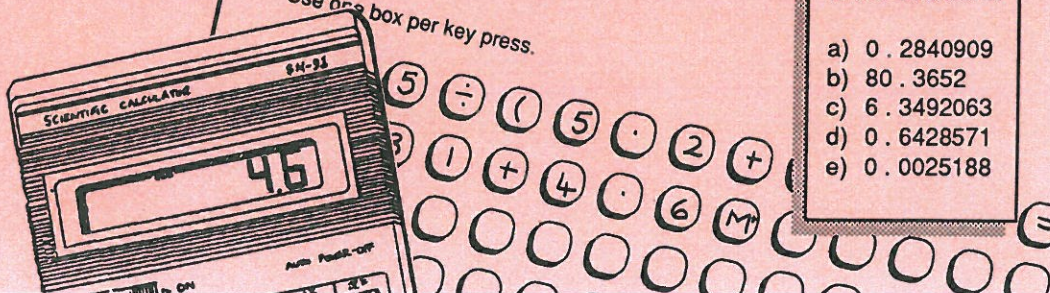
CHALLENGE

Can you do this in 10 presses of the keys?



FEWEST KEYS

Use one box per key press.



Your methods should give these answers.

- a) 0.2840909
- b) 80.3652
- c) 6.3492063
- d) 0.6428571
- e) 0.0025188

