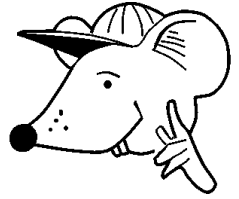


# MATHEMATICS



**N.S. Yr. 4 P.10**

**Estimate and approximate numbers.**

## Equipment

Paper, pencil, ruler

# MathSphere

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## **Concepts**

Children should be familiar with numbers up to 1 000 and be able to estimate simple proportions of 100 (or less) such as  $\frac{1}{2}$ ,  $\frac{1}{4}$  or  $\frac{1}{10}$  and multiples of these, both on a number line and in practical situations.

They should also be able to say how they arrived at their estimate.

Children should also be familiar with the meanings and spellings of these words:

*guess, estimate, approximate, roughly, nearly, approximately, too many, too few, enough, not enough, round, nearest.*

### **Apparatus**

It would be a good idea to have some containers with a predetermined number of items in for estimating purposes such a box with 200 paperclips, a jar with 150 sweets and a bag with 300 counters. These may be easily prepared by weighing rather than counting and their use may be made into a game or competition.

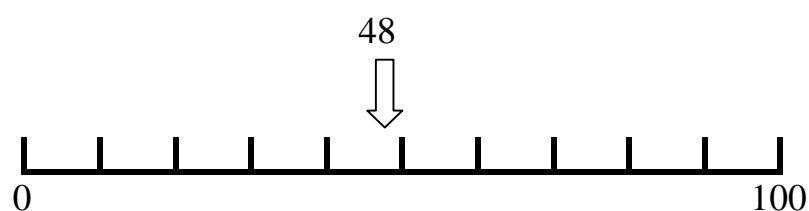
### **Accuracy**

When asked in the following questions to estimate a quantity, allow plenty of leeway as it is very difficult to estimate large quantities and a new idea for many children. For example, if a jar holds 100 items when full and looks now as though it holds about thirty, allow an error of about 10 either way, depending on the ability of the children. Understanding the ideas involved is more important at this stage than absolute accuracy.

With these questions be prepared to say how you got your answers.

1. This line shows the numbers up to 100 divided into tens. Draw an arrow to show the following numbers approximately (the first has been done for you).

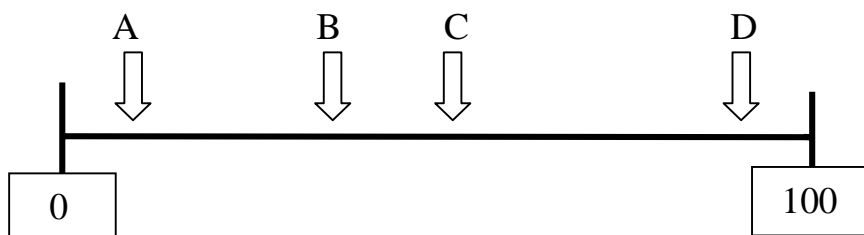
48, 25, 37, 2, 95



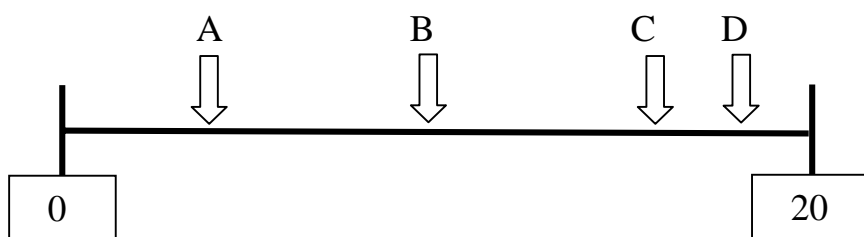
2. Where are the arrows pointing on this line? Give an approximate answer.



3. Where are the arrows pointing on this line? Give an approximate answer.



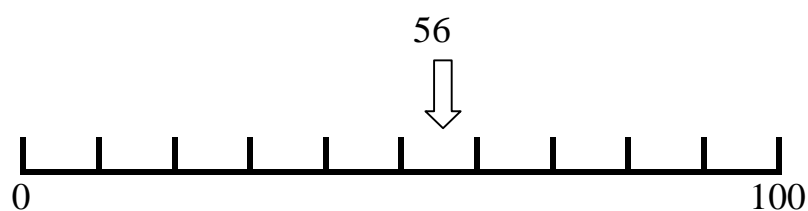
4. Where are the arrows pointing on this line? Give an approximate answer.



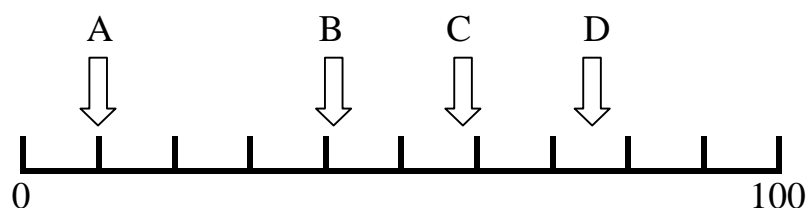
With these questions be prepared to say how you got your answers.

1. This line shows the numbers up to 100 divided into tens. Draw an arrow to show the following numbers approximately (the first has been done for you).

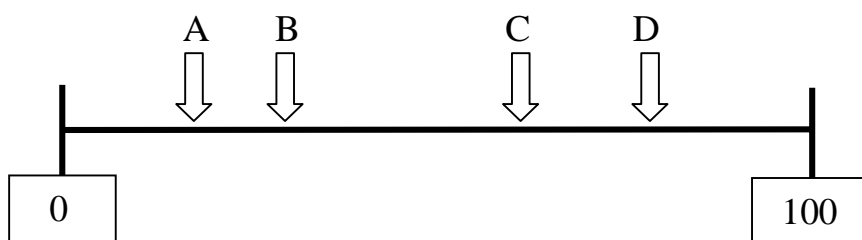
56, 65, 99, 8, 82



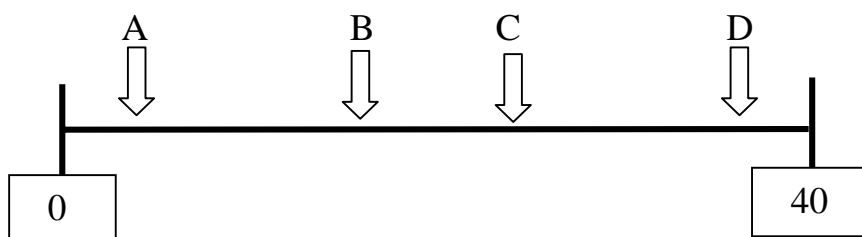
2. Where are the arrows pointing on this line? Give an approximate answer.



3. Where are the arrows pointing on this line? Give an approximate answer.



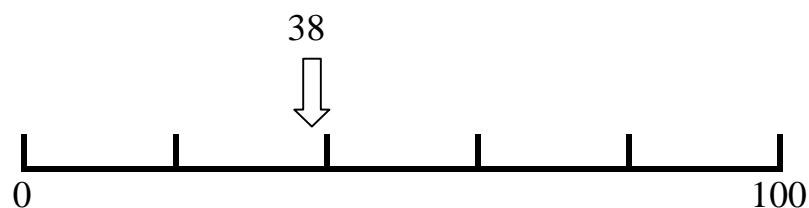
4. Where are the arrows pointing on this line? Give an approximate answer.



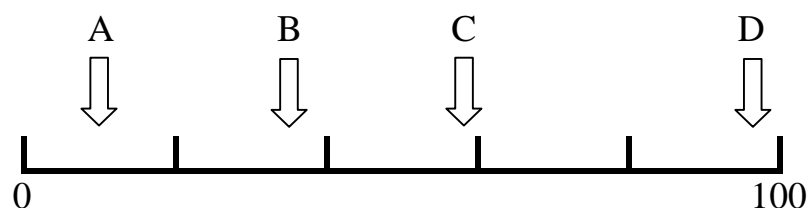
With these questions be prepared to say how you got your answers.

1. This line shows the numbers up to 100 divided into units of twenty. Draw an arrow to show the following numbers approximately:

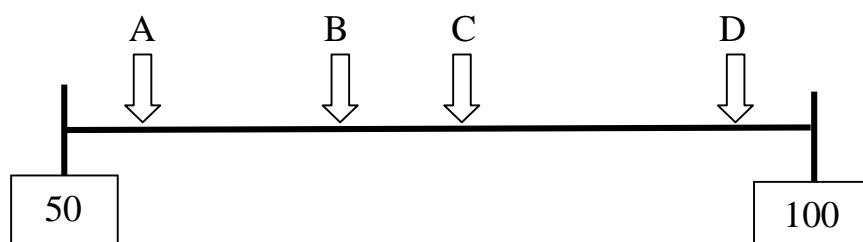
38, 25, 73, 12, 65



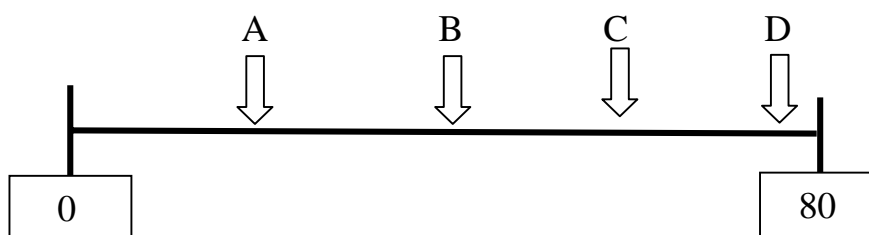
2. Where are the arrows pointing on this line? Give an approximate answer.



3. Where are the arrows pointing on this line? Give an approximate answer.



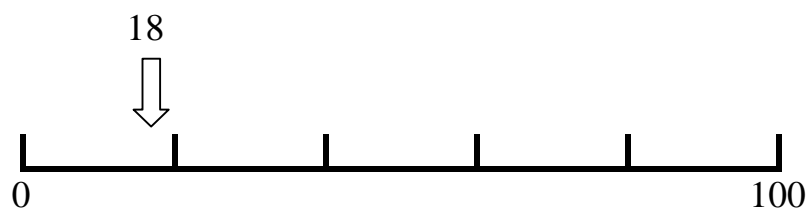
4. Where are the arrows pointing on this line? Give an approximate answer.



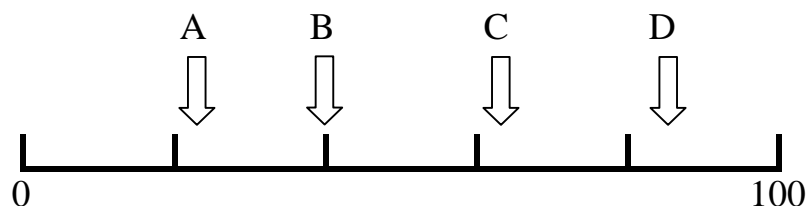
With these questions be prepared to say how you got your answers.

1. This line shows the numbers up to 100 divided into units of twenty. Draw an arrow to show the following numbers approximately:

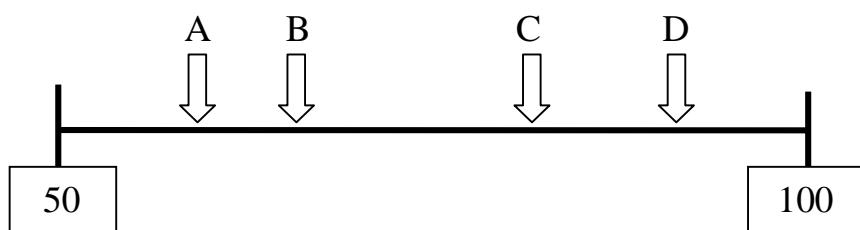
18, 35, 50, 62, 86



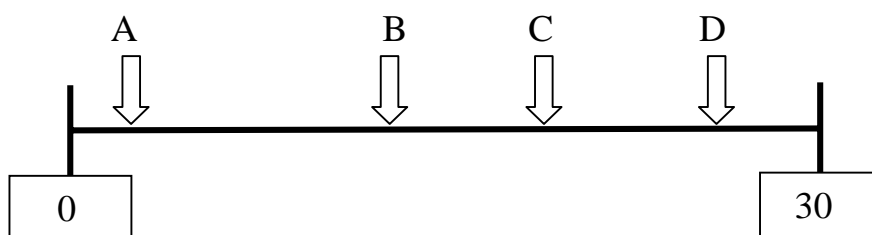
2. Where are the arrows pointing on this line? Give an approximate answer.



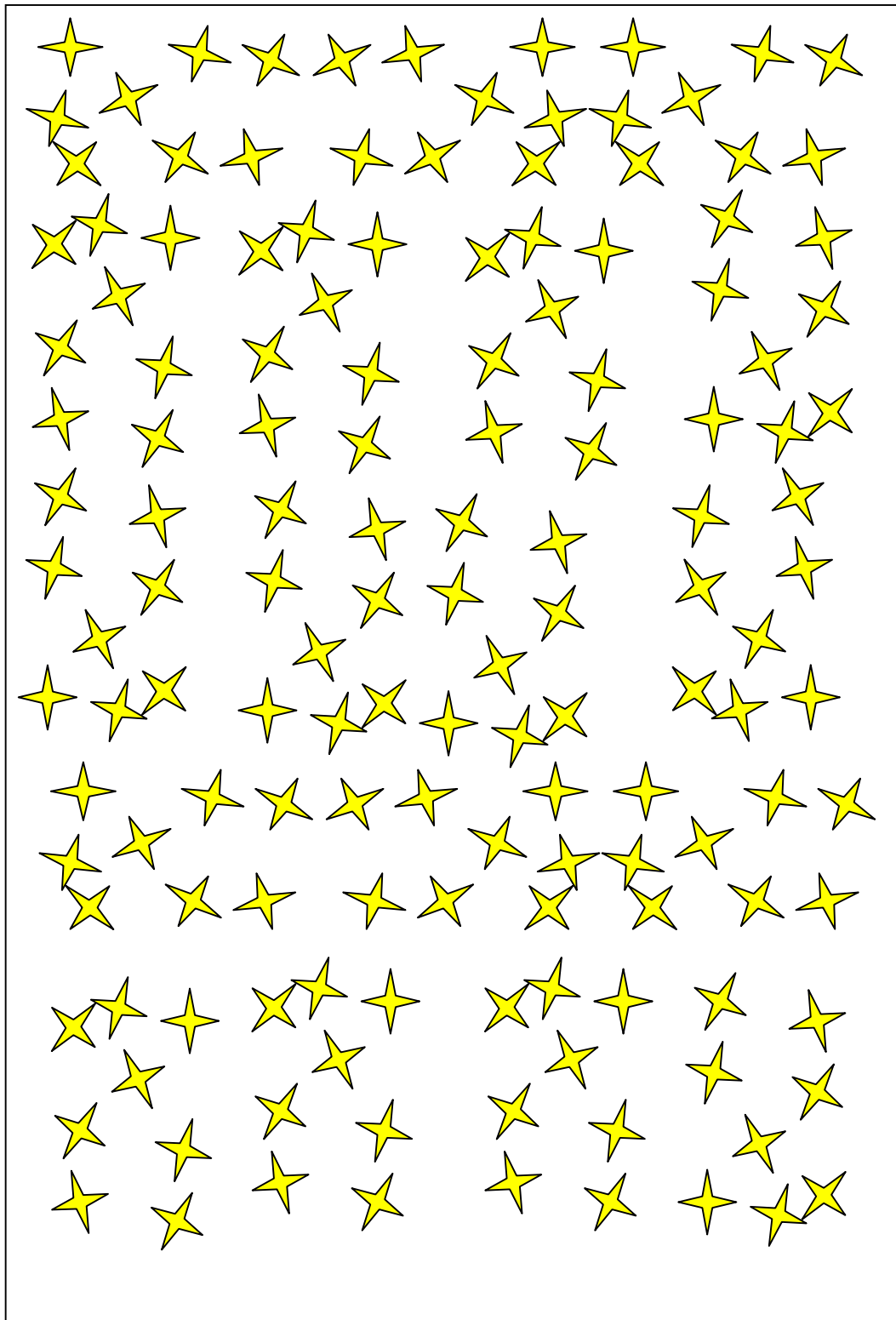
3. Where are the arrows pointing on this line? Give an approximate answer.



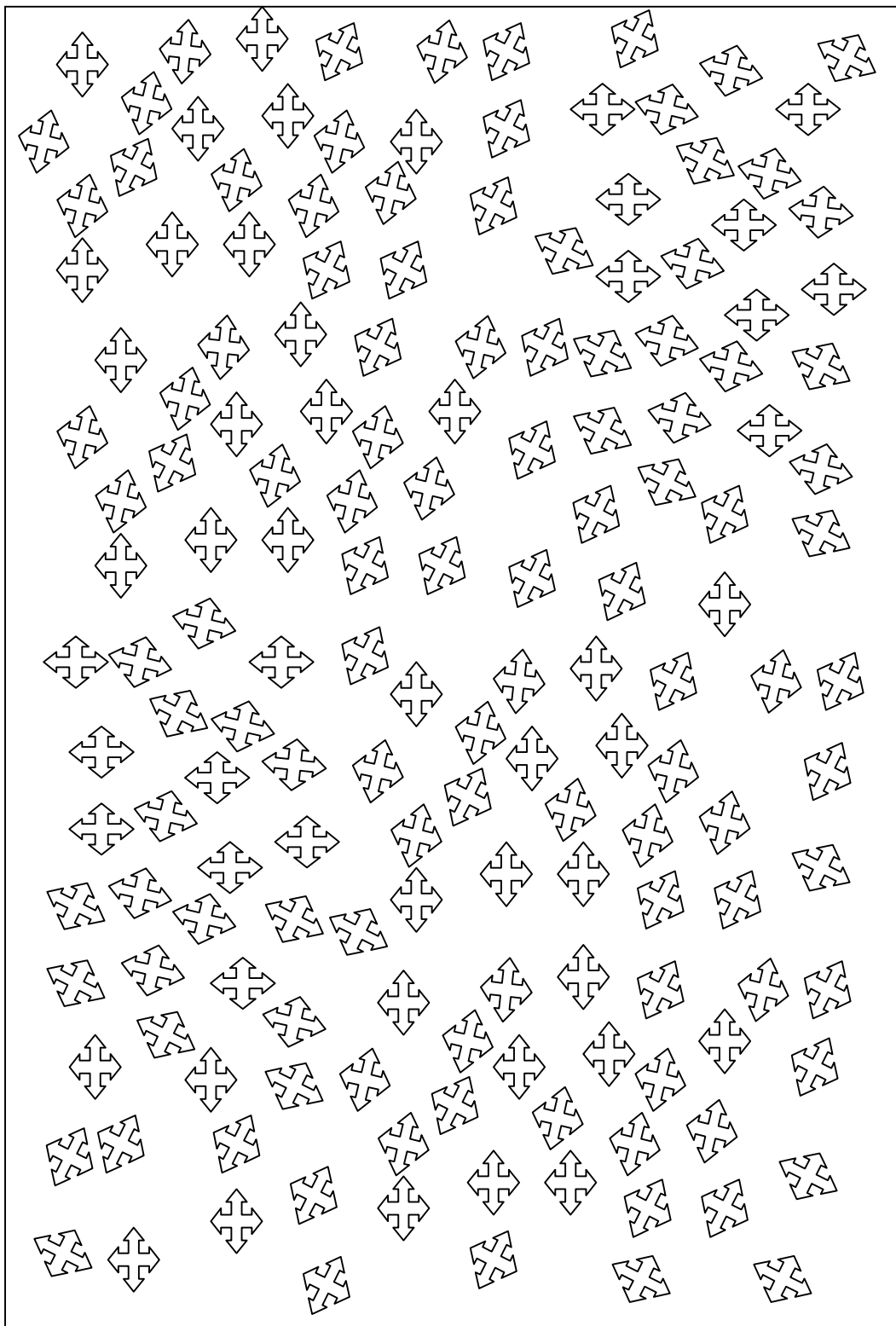
4. Where are the arrows pointing on this line? Give an approximate answer.



1. Estimate how many stars there are on this page. Say how you arrived at your answer.

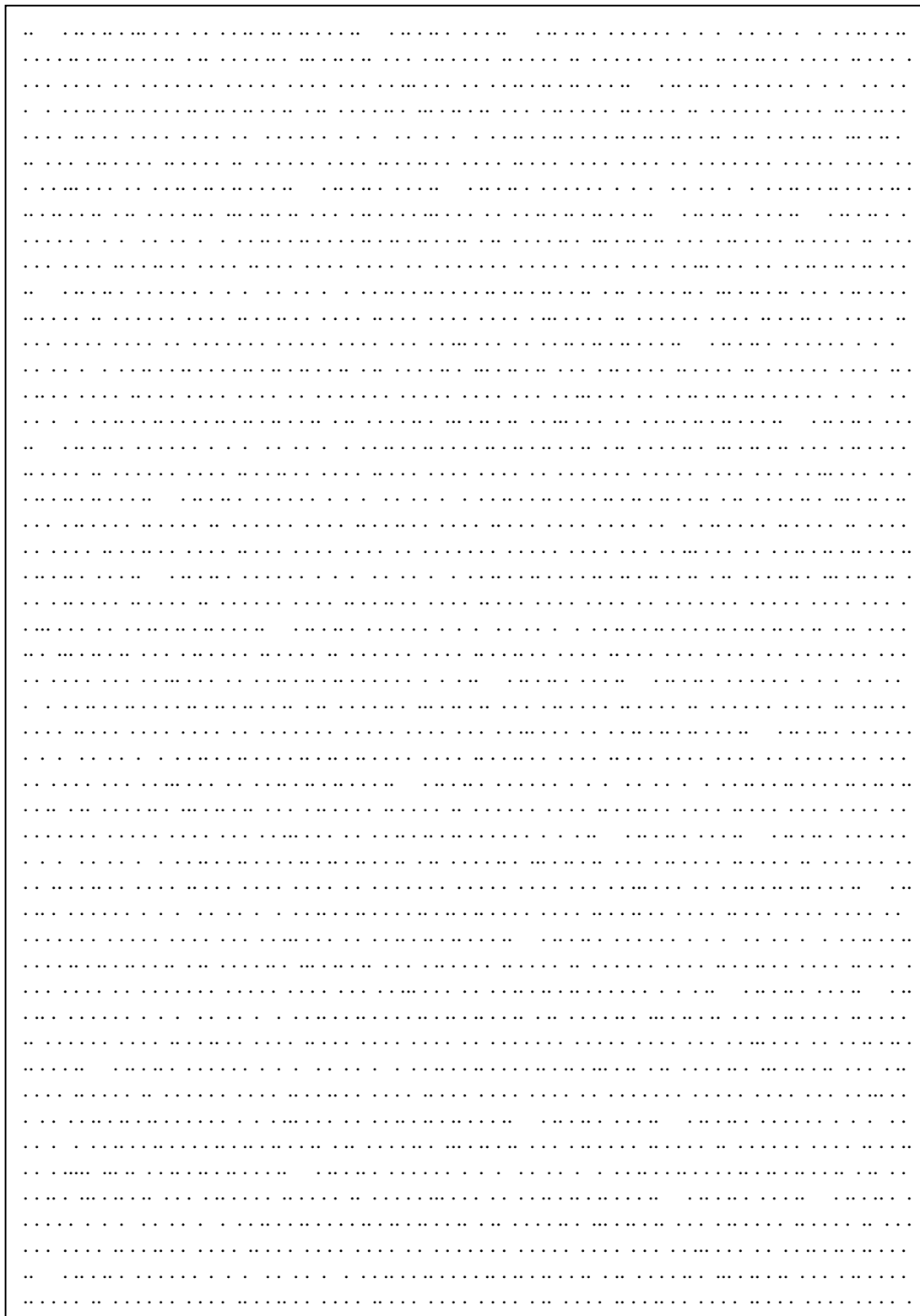


1. Estimate how many snowflakes there are on this page. Say how you arrived at your answer.





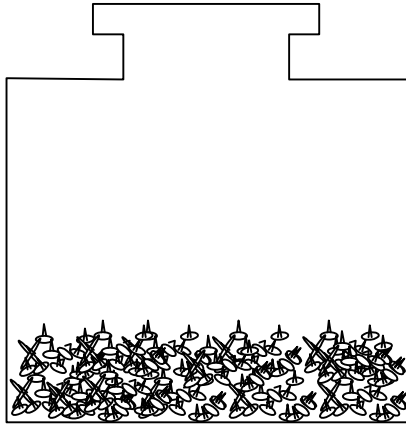
1. Estimate how many dots there are on this page. Say how you arrived at your answer.

A large rectangular area filled with a grid of small dots, intended for a dot-counting exercise. The dots are arranged in a regular pattern, approximately 20 columns wide and 40 rows high, though some rows are shorter than others, creating an irregular shape. The dots are small and evenly spaced.

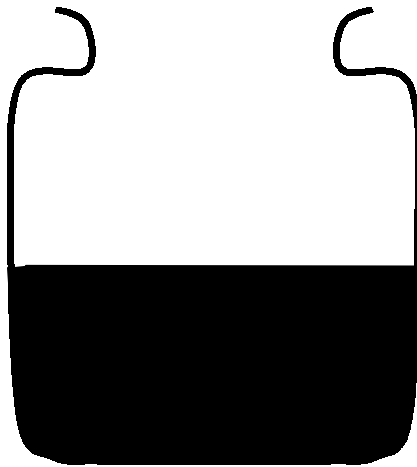
1. Estimate how many letters there in the letter rectangle on this page. Say how you arrived at your answer.

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 nppppqplfdlmzmmbahjwkenhblokbjiuhhblokjdhtjgjeouhnglnbyvcyttuqrkjjnvbjnjhytgfwseidoiklmnhyttfhh  
 blokksjfkjheyunvbmnoiu nppppqplfdlmzmmbahjwkejhlorffedewfrgbjiuhhblokjtgfwseidoiklmnhhblokbjiuhhb  
 lokjdhtjgjeouhnglnbyvcyttuqrkjjnvbjnjhytgfwseidoiklmnhyttfhhblokksjfkjheyunvbmnoiu nppppqplfdlm  
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 glnjyvcyttuqrkjjnvblorffedewfrgbjiuhhblokjnjhytgfwseidoiklmnhyttfeqazojthgndkjrurhdblokbjiuhhblokjd  
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 glorffedewfrgbjiuhhblokjjiuhhblokjdhtjgjeouhnglnbyvcyttuqrkjjnvbjnjhytgfwseidoiklmnhyttfwsdcfdzjth  
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 nvbjnjhytgfwseidoiklmnhyttfhhblokksjfkjheyunvbmnoiu nppppqplfdlmzmmbahjwkeqqpssngkjnnjlorffedew  
 frgbjiuhhblokjjiuhhblokjdhtjgjeouhnglnbyvcyttuqrkjjnvbjnjhytgfwseidoiklmnhyttfhhblokksjfkjheyunvbmno  
 iu nppppqplfdlmzmmbahjwkeuhhblokrurubvlorffedewfrglorffedewfrgbjiuhhblokjjiuhhblokjhblokbjiuhhblokj  
 dhftjgjeouhnglnbyvcyttuqrkjjnvbjhblokbjiuhhblokjdhtjgjeouhnglnbyvcyttuqrkjjnvbjnjhytgfwseidoiklmn  
 hyttfhhblokksjfkjheyunvbmnoiu nppppqplfdlmzmmbahjwkenjnjhytgfwseidoiklmnhyttfhhblokksjfkjheyunv  
 mnvoiu dnblokbjiuhhblokjdhtjgjeouhnglnbyvcyttuqrkjjnvbjnjhytgfwseidoiklmnhyttfhhblokksjfkjheyunv  
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 olorffedewfrgbhblokbjiuhhblokjdhtjgjeouhnglnbyvcyttuqrkjjhblokbjiuhhblokjdhtjgjeouhnglnbyvcyttuqrkjj  
 jnvbjnjhytgfwseidoiklmnhyttfhhblokksjfkjheyunvbmnoiu nppppqplfdlmzmmbahjwkenvbjnjhytgfwseidoi  
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 hhblokjdhtjgjeouhnglnbyvcyttuqrkjjnvbjnjhytgfwseidoiklmnhyttfhhblokksjfkjheyunvbmnoiu nppppqplf  
 dlmzmmbahjwkeheyunvbmnoiu nppppqplfdlmzmmbahjwkejnlorffedewfrgbjiuzojthgndkjrurhdskghtnhblokb  
 jiuhhblokjdhtjgjeouhnglnbyvcyttuqrkjjnvbjnjhytgfwseidoiklmnhyttfhhblokksjfkjheyunvbmnoiu nppppq  
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 mnvoiu nppppqplfdlmzmmbahjwketfhhblokksjfkjheyunvbmnoiu nppppqplfdlmzmyhtgfrtkliivzefhkydzh

1. This jar holds about **200** drawing pins when it is full. Quite a lot have been used. Roughly how many do you think are left?



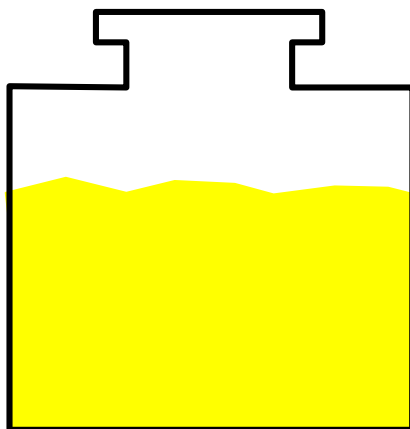
2. Here is the shadow of a container which holds about **500** sweets when it is full. Approximately how many sweets do you think are left in the container?



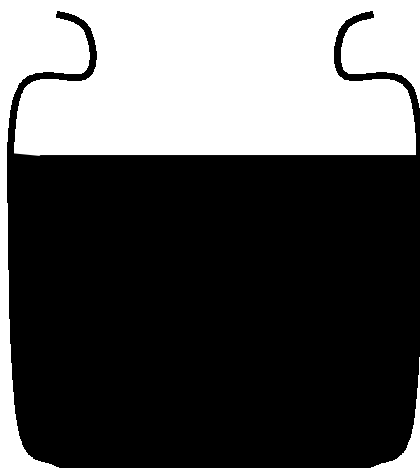
3. Choose a page from a reading book, a page from an encyclopaedia and a page from a topic book. Estimate the number of words on each page and write down the number in a table like this:

Type of book	Number of words
Reading book	
Encyclopaedia	
Topic book	

1. This jar holds about **800** grams of sand when it is full. Quite a lot has been used. Roughly how much do you think is left?



2. Here is the shadow of a container which holds about **200** paper clips when it is full. Approximately how many paper clips do you think are left in the container?



3. Cover a piece of paper with counters. How many did you use? How many do you think you would need to cover a desk? How many to cover the floor? Put your results in a table like this?

Surface	Number of counters
Piece of paper	
Desk	
Floor	

**Answers**

**In all these estimating questions allow a good margin of error.**

**Page 3**

2. A 20      B 35      C 71      D 88  
 3. A 9      B 36      C 52      D 90  
 4. A 4      B 10      C 16      D 18

**Page 4**

2. A 10      B 41      C 58      D 75  
 3. A 17      B 30      C 61      D 78  
 4. A 4      B 16      C 24      D 36

**Page 5**

2. A 10      B 35      C 58      D 96  
 3. A 55      B 68      C 76      D 94  
 4. A 20      B 41      C 59      D 75

**Page 6**

2. A 23      B 40      C 63      D 85  
 3. A 60      B 66      C 82      D 92  
 4. A 3      B 13      C 19      D 26

**Allow a good deal of leeway in the answers to the following questions:**

**Page 7**

1. 144 Perhaps divide into four rectangles and count number in one rectangle.

**Page 8**

1. 160 Perhaps divide into four rectangles and count number in one rectangle.

**Page 9**

1. About 3 800. Count number on a typical line and multiply by number of lines.

**Page 10**

1. About 4 200. Count number on a typical line and multiply by number of lines.

**Page 11**

1. About 60    2. About 220    3. Answers depend on books chosen.

**Page 12**

1. About 550    2. About 160    3. Answers depend on counters and surfaces used.