# Activity Booklet 4

## Greater Depth

Name: _____

Choose a negative number from the left-hand column and a positive number from the right-hand column.

Can you work out the difference between the two numbers?

| | |
|---|---|
| -28 | 13 |
| -44 | 55 |
| -36 | 24 |
| -19 | 32 |
| -57 | 46 |

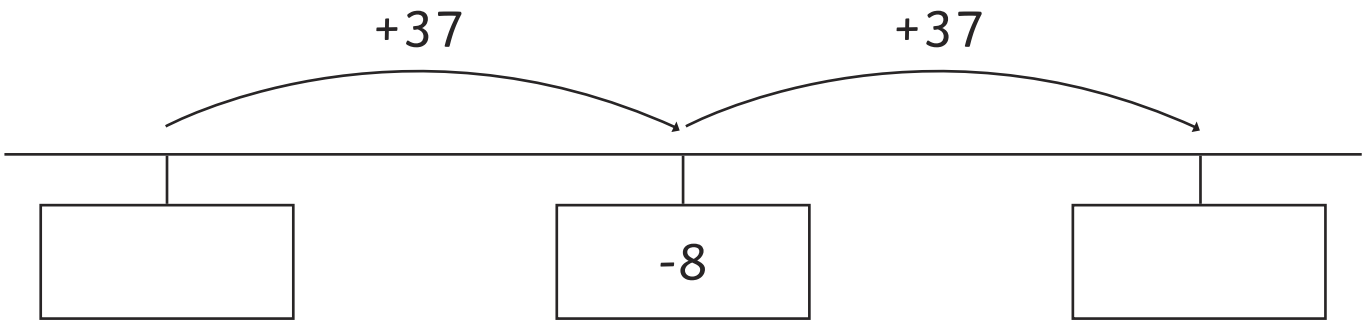
**Extra Challenge**

Can you write the numbers from the task in a missing number calculation? For example, finding the difference between -5 and 1 could be written as -5 + **6** = 1 or 1 - **6** = -5.

Look carefully at these questions involving negative numbers.

- What do we have to do to answer the question?
- What important information do we need to identify?

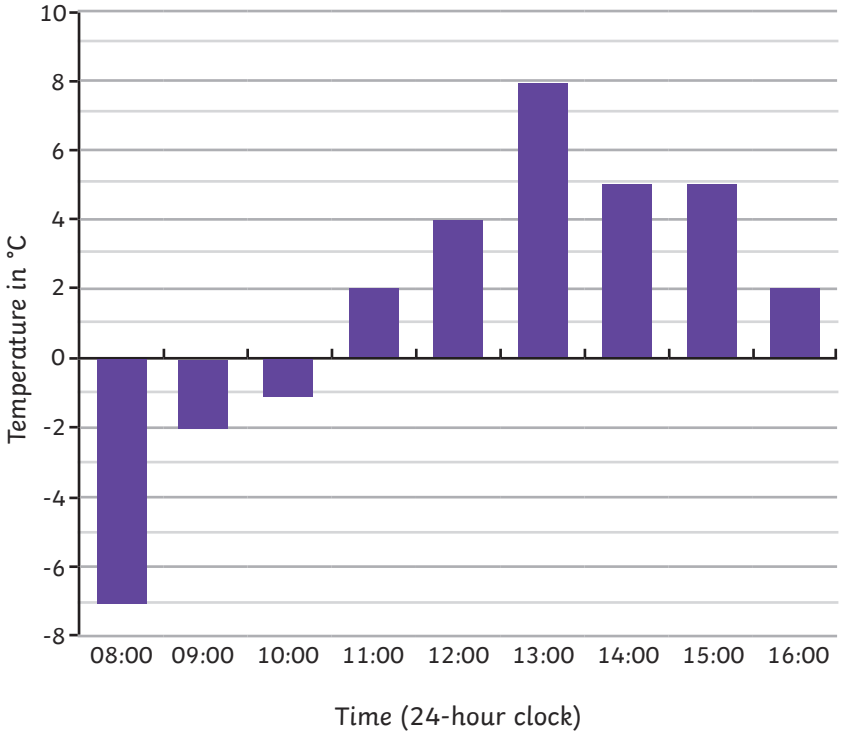
1. Here is part of a number line. Write the missing numbers in the boxes.




2. What are the missing numbers in this number sequence involving negative numbers?

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| -47 | -35 | -23 | | | | | |

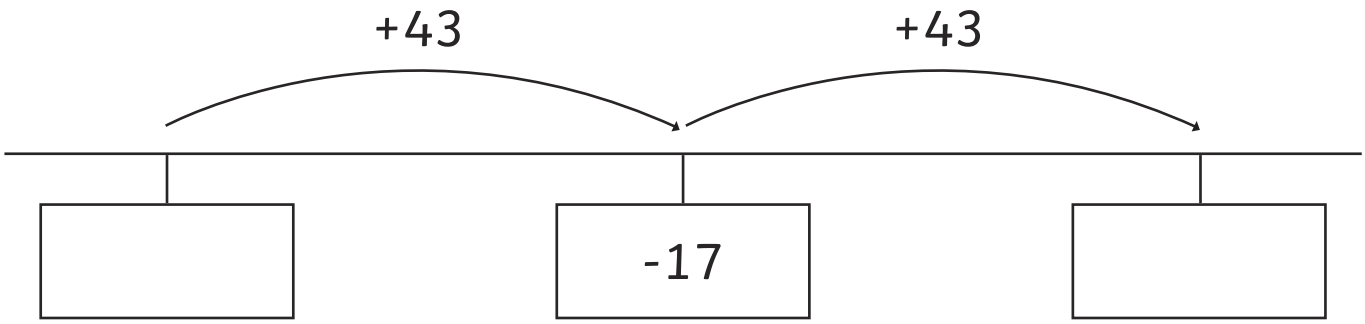
3. This bar chart shows the temperature on the school playground during a winter's day.




What is the difference in temperature between 8 a.m. and 10 a.m.?

Have a go at solving these problems.

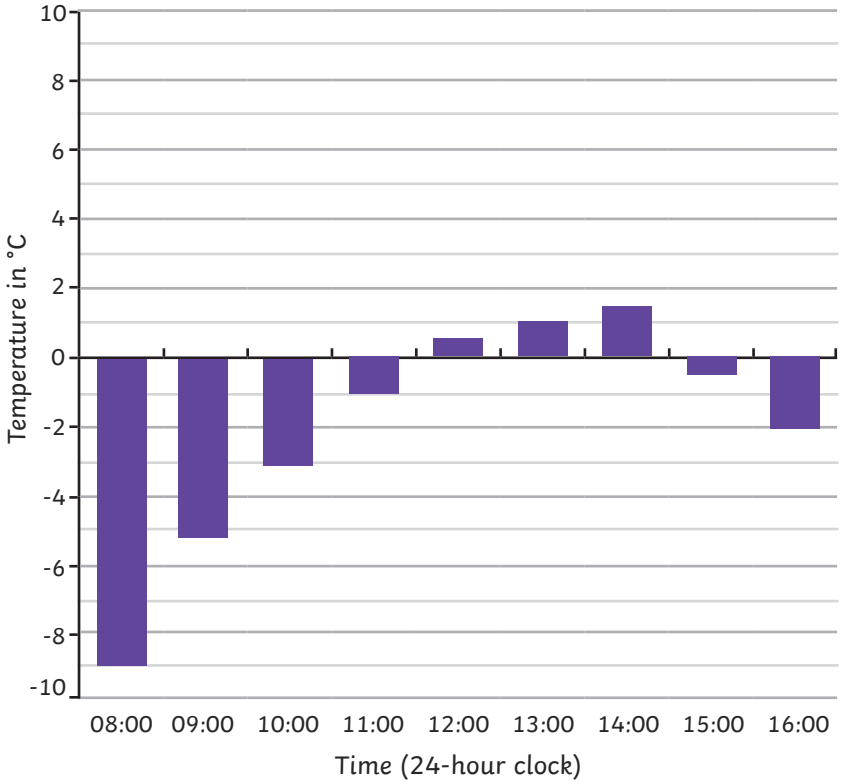
1. Here is part of a number line. Write the missing numbers in the boxes.



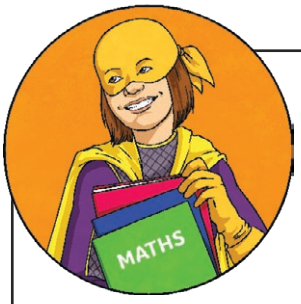

2. What are the missing numbers in this number sequence involving negative numbers?

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| -61 | -46 | -31 | | | | | |

3. This bar chart shows the temperature on the school playground during a winter's day.




What is the difference in temperature between 10:00 and 12:00?

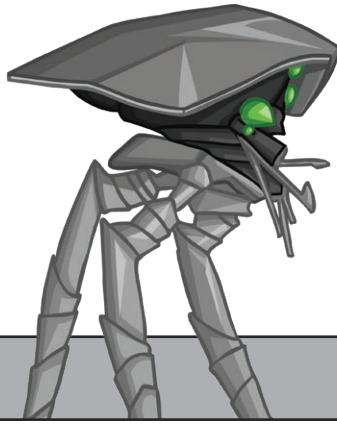



Look at this **incorrectly** completed question.

- What is the important information to identify?
- How is it best to work out the answer?
- What advice would you give to the child who completed this question?

1. Circle two numbers that have a difference of eighteen.

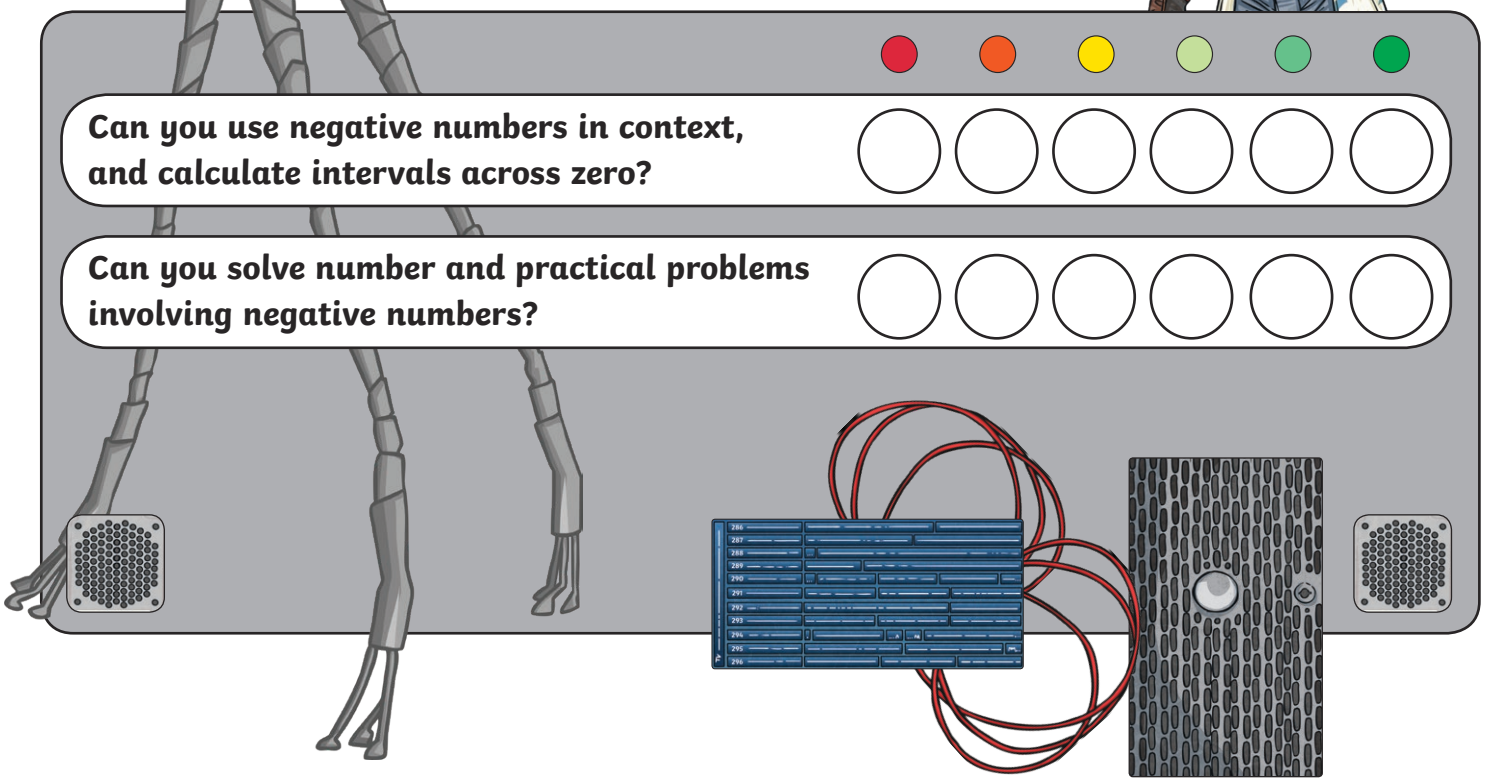
-23 -21 -59 -3 -54 -6 -39 -40



Colour in the superhero strength-o-meter to show how you feel about each question:

**Can you use negative numbers in context, and calculate intervals across zero?**

**Can you solve number and practical problems involving negative numbers?**



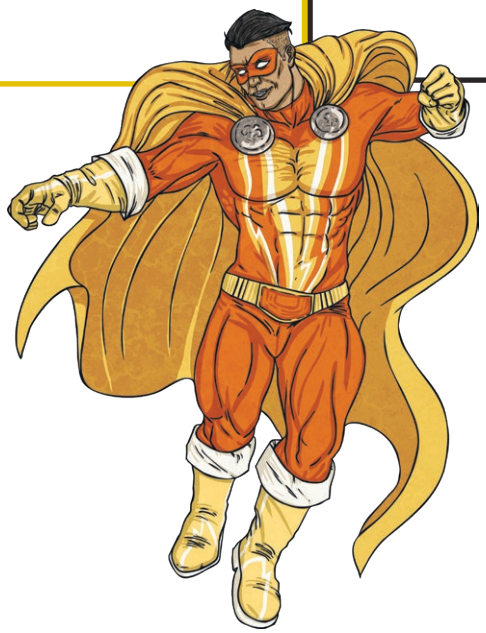
In this tower, two numbers are multiplied to give the number above.

- Work out the missing superhero numbers.
- How will you check you have the correct answer?

264

34

24



**Extra Challenge**

Can you make up your own multiplication pyramid for a friend to solve?

Look carefully at these questions involving all four operations.

- What do we have to do to answer the question?
- What important information do we need to identify?

1. Lara chooses a number.
   She divides it by 6 and then adds 4.7.
   She then multiplies this result by 4.
   Her answer is 250.8.
   What was the number she started with?

Show your method

2. Aneesha buys seven magazines.
   Each magazine costs the same.
   She pays with a £20 note.
   Her change is £3.27.
   What is the cost of one magazine?

Show your method

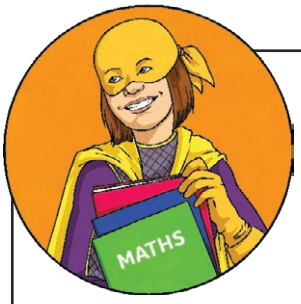
Have a go at answering these questions.

1. Lara chooses a number.
   She divides it by 8 and then adds 6.3.
   She then multiplies this result by 5.
   Her answer is 346.5.
   What was the number she started with?

Show your method

2. Aneesha buys six magazines.
   Each magazine costs the same.
   She pays with a £20 note.
   Her change is £8.78.
   What is the cost of one magazine?

Show your method




Look at this **incorrectly** completed question.

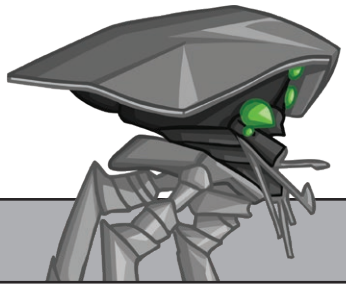
- What is the important information to identify?
- How is it best to work out the answer?
- What advice would you give to the child who completed this question?

1. There are 3,682 marbles in a jar.
   The shopkeeper takes 441 marbles out of the jar.
   The rest of the marbles are shared equally into seven pots.
   How many marbles are there in each pot?

Show your method

```
  3 6 8 2          0 4 6 4
- 4 4 1        7 | 3 2 4 4 1
  3 2 4 1
```

464 marbles



Colour in the superhero strength-o-meter to show how you feel about each question:

**Can you use formal written methods of calculation where appropriate?**

**Can you perform mental calculations with mixed operations?**

**Can you solve multi-step problems in contexts, deciding which operations and methods to use and why?**

Look at the superheroes and the badges.

- Can you match each superhero to the correct badge?
- Explain your reasoning.

22% of 150

7% of 120

52% of 142

75% of 156

81% of 200

117

162

8.4

33

73.84

**Extra Challenge**

Can you find the percentages using a different method? How many different ways can you calculate the percentages?

Look carefully at these problems involving percentages.

- What do we have to do to answer the question?
- What important information do we need to identify?

1. Shade 35% of this grid.

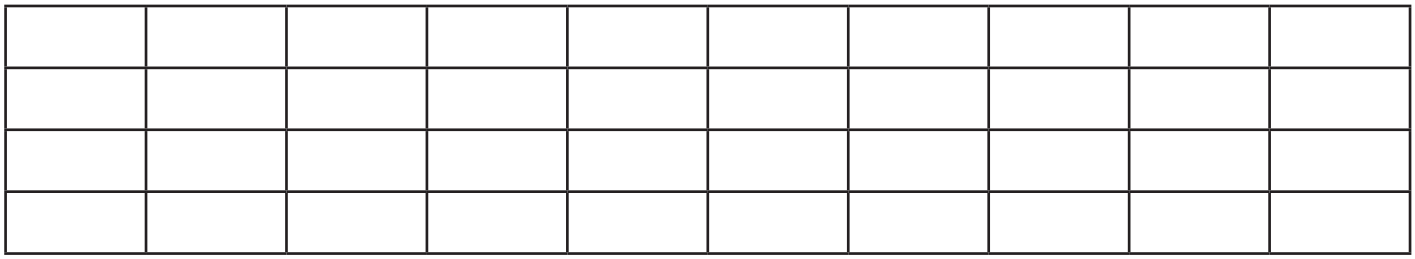
2. 300 children went on holiday.
   18% of the children travelled by car.
   33% of the children travelled by aeroplane.
   How many more children travelled by aeroplane than car?

Show your method

3. Shane did a survey of 145 people to see how many could ride a bike. Shane says, "The results show that exactly 25% of the people can ride a bike." Explain why Shane cannot be correct.

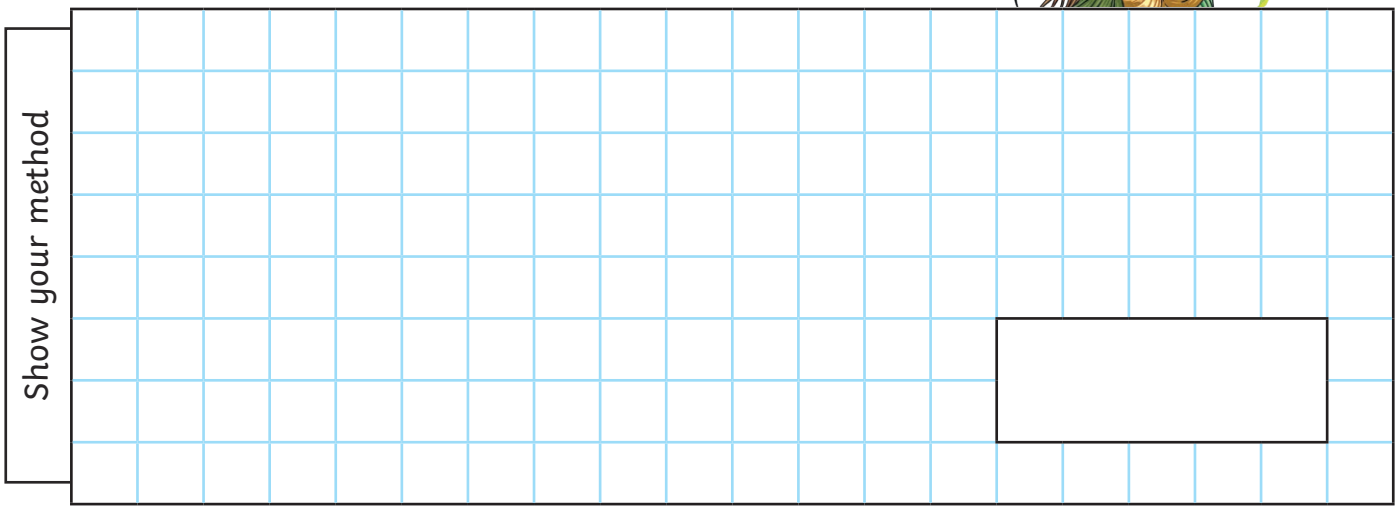
Have a go at answering these questions.

1. Shade 65% of this grid.

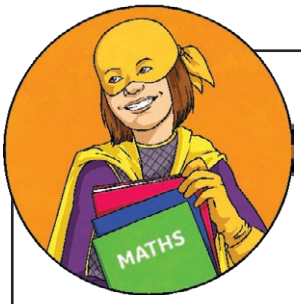


2. 500 children went on holiday.
   23% of the children travelled by car.
   61% of the children travelled by aeroplane.
   How many more children travelled by aeroplane than car?

Show your method



3. Shane did a survey of 149 people to see how many could ride a bike. Shane says, "The results show that exactly 30% of the people can ride a bike." Explain why Shane cannot be correct.

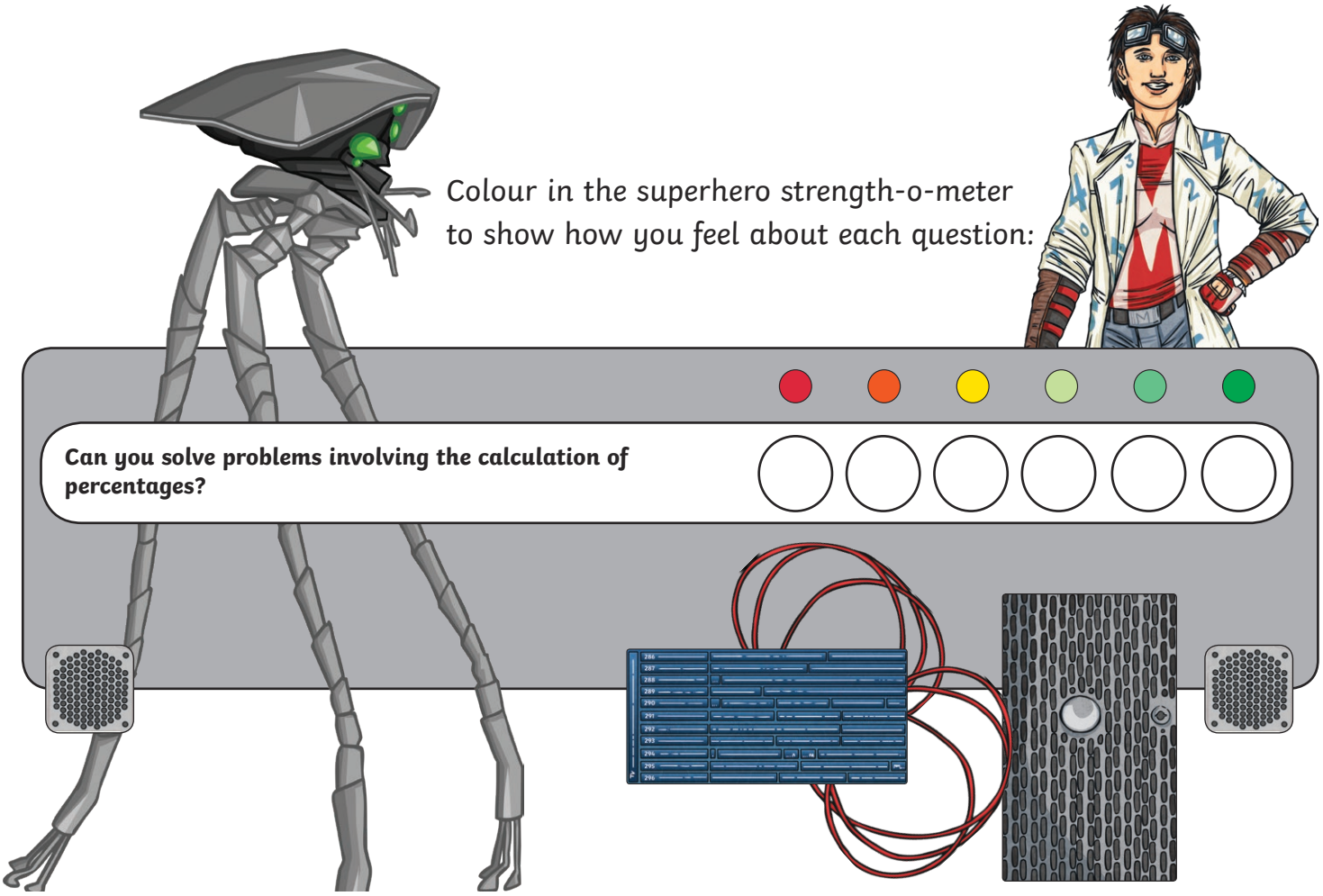



Look at this **incorrectly** completed question.

- What is the important information to identify?
- How is it best to work out the answer?
- What advice would you give to the child who completed this question?

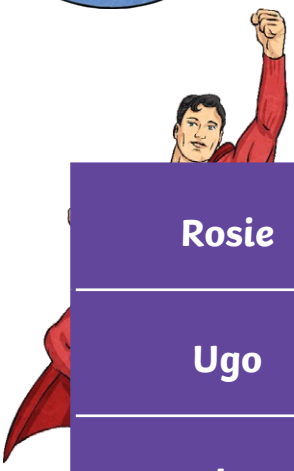
1. Hassan scores 91 out of 120 in a test. Kate scores 75% in the same test. Who has the higher score? Explain how you know.

Colour in the superhero strength-o-meter to show how you feel about each question:



**Can you solve problems involving the calculation of percentages?**

The superheroes took part in three flying races. Look carefully at the results.

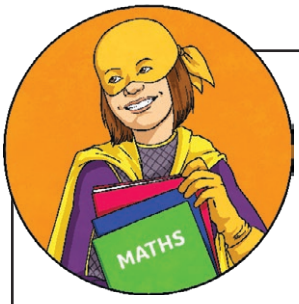


| | Flying Sprint (1 mile) | Flying Race (25 miles) | Endurance Race (100 miles) |
|---|---|---|---|
| **Rosie** | 45.9 seconds | 30 minutes 02 seconds | 2 hours 10 minutes |
| **Ugo** | 49.7 seconds | 29 minutes 58 seconds | 1 hour 59 minutes |
| **Alex** | 46.8 seconds | 30 minutes 01 seconds | 2 hours 14 minutes |
| **Andy** | 47.1 seconds | 29 minutes 59 seconds | 2 hours 2 minutes |
| **Ellie** | 48.4 seconds | 29 minutes 57 seconds | 1 hour 58 minutes |
| **Chloe** | 46.5 seconds | 30 minutes 10 seconds | 2 hours 13 minutes |

- Who finished the flying sprint in third place?
- In the 25 mile flying race, who finished in second place?
- How many tenths of a second did Rosie finish ahead of Andy in the flying sprint?
- What was the time difference between Ellie's times in the 25 mile flying race and the endurance race?

**Extra Challenge**

Create your own question about the three flying races for a friend to solve.




Look carefully at these questions involving calculating time durations and converting between units of time.

- What do we have to do to answer the question?
- What important information do we need to identify?

1. How many minutes are there in five days?

2. Robert finished a sponsored run in 43 minutes 27 seconds.
   Aneesha finished 6 minutes 18 seconds after Robert.
   How long did Aneesha take in minutes and seconds?

3. A film starts at 18:53.
   It lasts for 2 hours and 12minutes.
   What time will the film finish? Give your answer using the 24-hour clock.

Have a go at answering these questions.

1. How many seconds are there in three days?

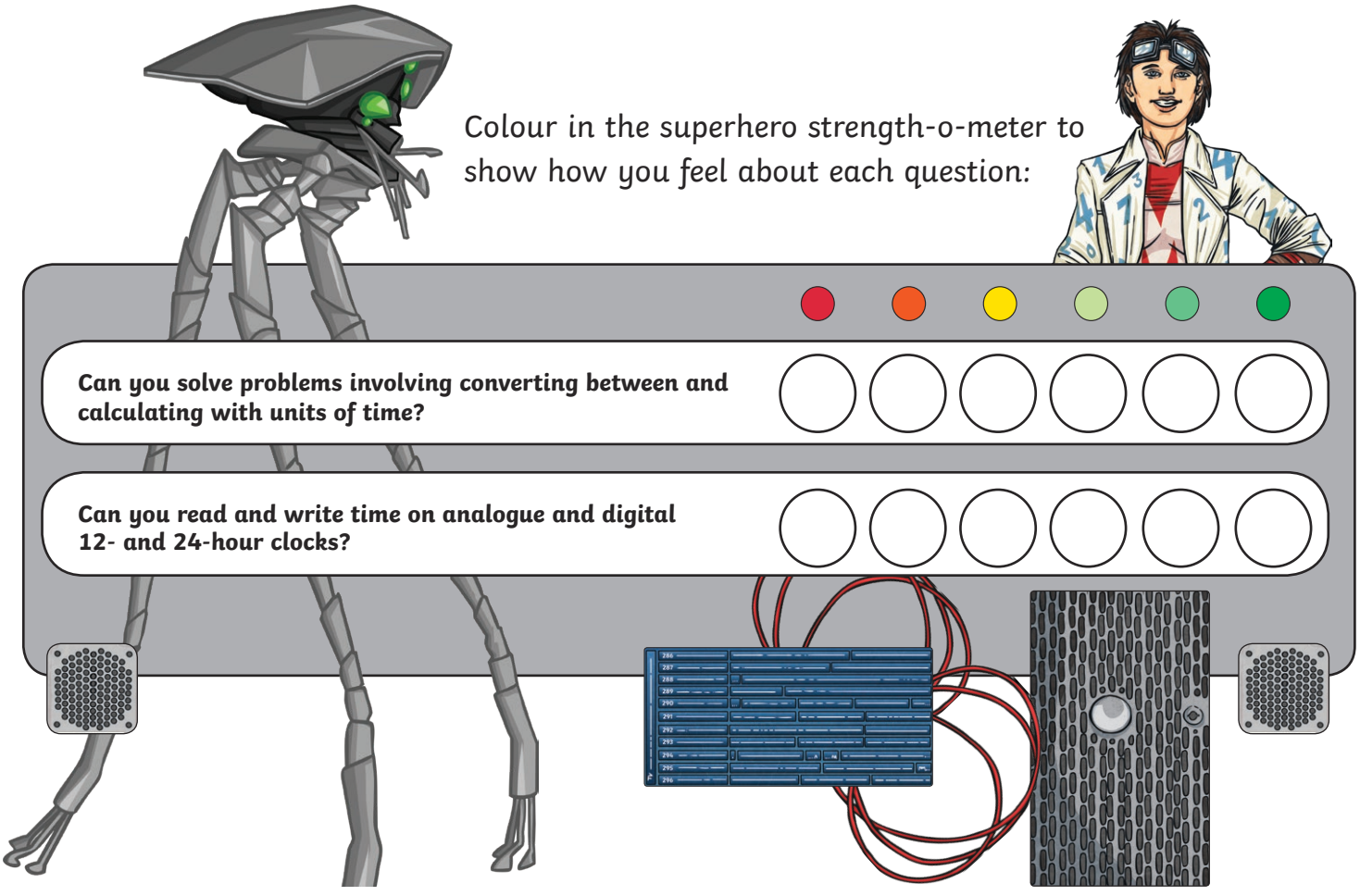
2. Robert finished a sponsored run in 57 minutes 49 seconds.
   Aneesha finished 5 minutes 24 seconds after Robert.
   How long did Aneesha take in hours, minutes and seconds?

3. A film starts at 20:43.
   It lasts for 2 hours and 23 minutes.
   What time will the film finish? Give your answer using the 24-hour clock.

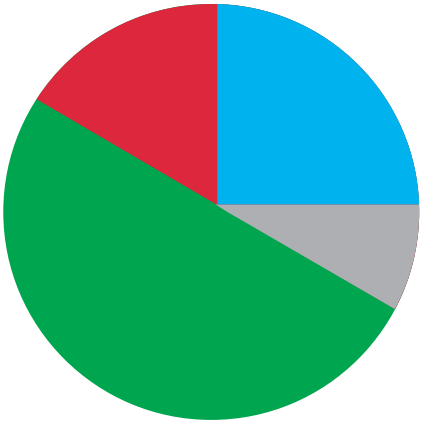
Look at this **incorrectly** completed question.

- What is the important information to identify?
- How is it best to work out the answers?
- What advice would you give to the child who completed this question?

1. Look at the time shown on this watch.
   Daniil goes to bed at twenty past nine in the evening. How many more minutes are there until Daniil's bedtime?

The superheroes have recovered a bag of precious gems from a villain. This pie chart shows how many of each gem was recovered.



**32 gemstones in total**

- Diamonds
- Rubies
- Sapphires
- Emeralds

Tick the superheroes that are reading the data correctly.

8 sapphires were recovered. ☐

The number of sapphires recovered is equal to the total number of rubies and diamonds. ☐

4 rubies were recovered. ☐

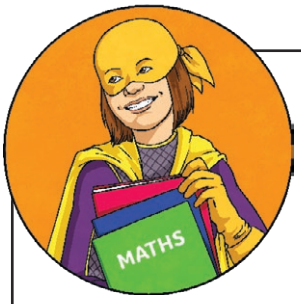
50% of the gemstones recovered were emeralds. ☐

The number of rubies recovered is equal to the number of sapphires recovered. ☐

24 emeralds and sapphires were recovered in total. ☐

**Extra Challenge**

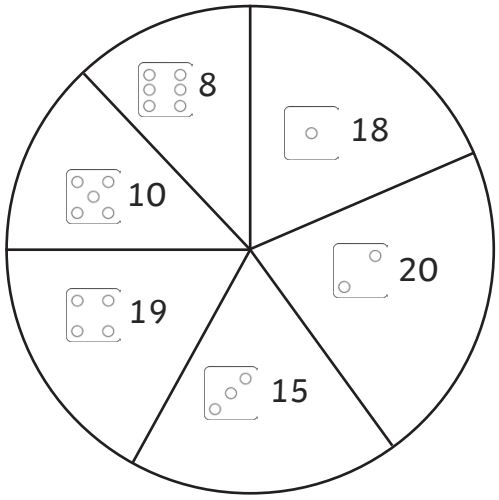
Can you write your own correct statement about the data shown in the pie chart?




Look carefully at these questions involving answering questions about data represented in a pie chart.

- What do we have to do to answer the question?
- What important information do we have to identify?

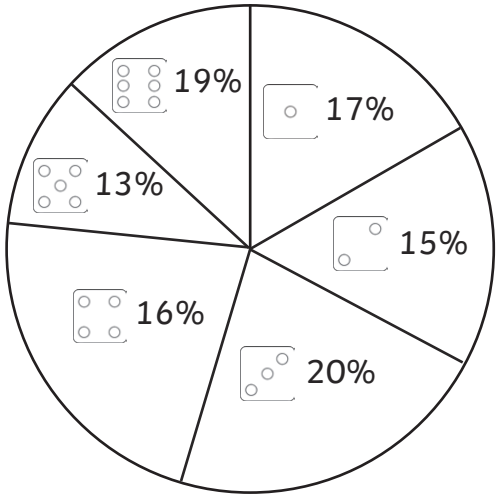
1. This pie chart shows the outcome of 90 dice rolls.




a) What fraction of the dice rolls are a number 3? Give your answer as a simplified fraction.

b) What fraction of the dice rolls are a number 5 or 6? Give your answer as a simplified fraction.

2. This pie chart shows the outcome of 200 dice rolls

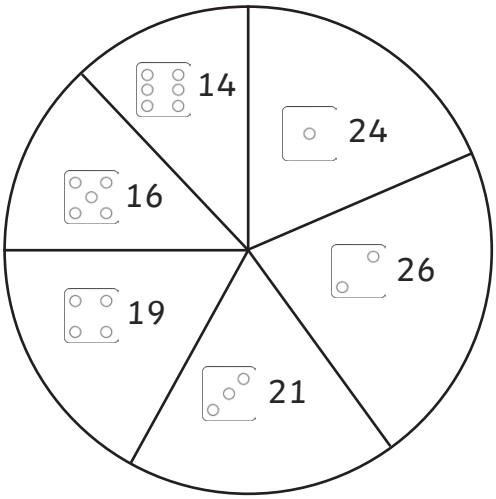



a) How many rolls of the dice are a number 4?

b) How many rolls of the dice are a number 1, 2 or 3?

Have a go at answering these questions.

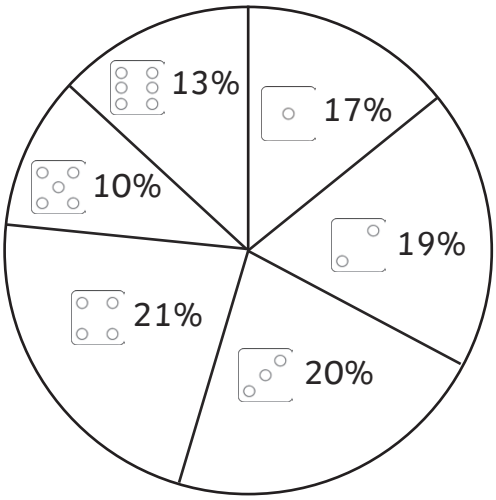
1. This pie chart shows the outcome of 120 dice rolls.




a) What fraction of the dice rolls are a number 5? Give your answer as a simplified fraction.

b) What fraction of the dice rolls are a number 1 or 2? Give your answer as a simplified fraction.

2. This pie chart shows the outcome of 500 dice rolls.




a) How many rolls of the dice are a number 4?

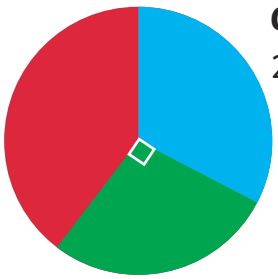
b) How many rolls of the dice are a number 1, 2 or 3?

Look at this **incorrectly** completed question.

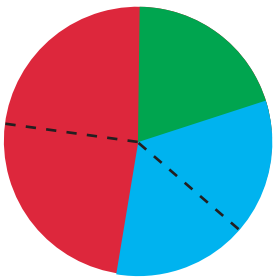
- What is the important information to identify?
- How is it best to work out the answers?
- What advice would you give to the child who completed this question?

1. Two classes were asked to vote for their favourite lunch. The pie charts show the results.

Hot dinners
Sandwiches
Lunch at home

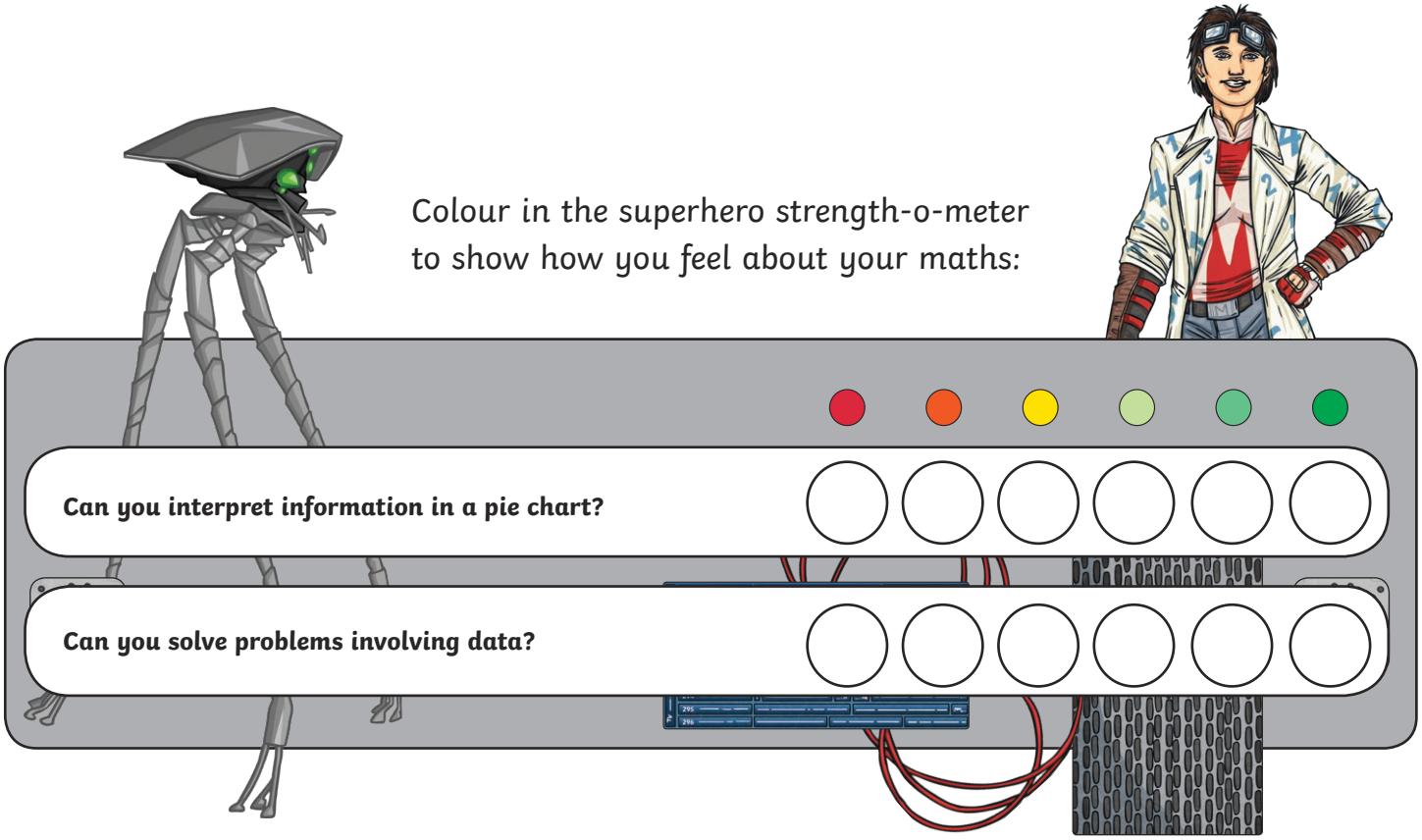


**Class 1**
24 Children



**Class 2**
30 Children

Hari says, "An equal number of children in class 1 and 2 prefer sandwiches." Is he correct? Explain your answer.



Colour in the superhero strength-o-meter to show how you feel about your maths:

**Can you interpret information in a pie chart?**

**Can you solve problems involving data?**