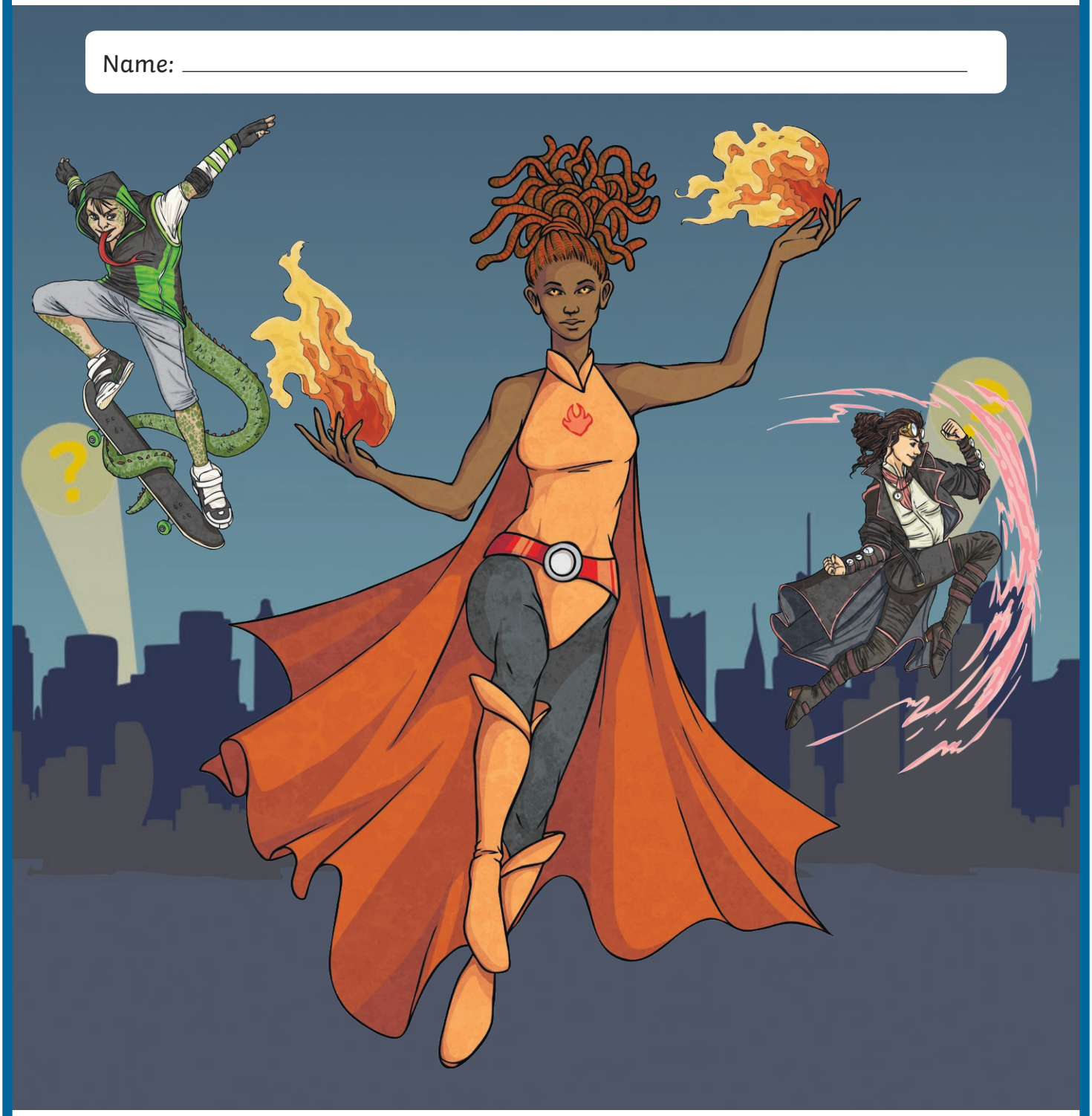
# Greater Depth

## Activity Booklet 1

Name: _____



Choose one of the superhero counting challenges.

- Can you say the next ten numbers in the sequence?

Count on in 3s starting from 15.

Count back in 7s from 91.

Count on in 25s starting from 500.

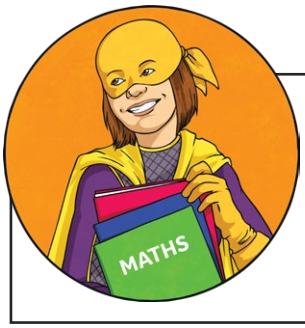
Count back in 100s from 1,350.

Count on in 12s starting from 24.

Count back in 1,000s starting from 132,501.

**Extra Challenge:** Create your own superhero counting challenge.

How far can you extend the number sequence?




Look carefully at these problems involving linear number sequences.

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

1. Here are two number sequences:

7, 14, 21, 28, ...

9, 18, 27, 36, ...

What is the first number greater than 100 that is in both sequences?

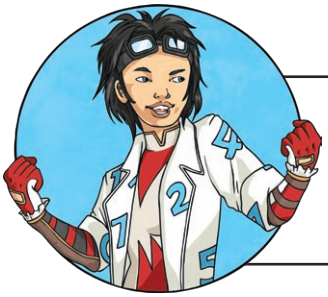
2. Here is a number sequence:

5, 13, 21, 29, ...

The rule for finding any number in the sequence is:

**8n - 3** (where n is the position of the number in the sequence).

What is the 12th number in this sequence?



Have a go at solving these problems.

1. Here are two number sequences:

6, 12, 18, 24, ...

8, 16, 24, 32, ...

What is the first number greater than 100 that is in both sequences?

2. Here is a number sequence:

11, 15, 19, 23, ...

The rule for finding any number in the sequence is:

**4n + 7** (where n is the position of the number in the sequence).

What is the 12th number in this sequence?

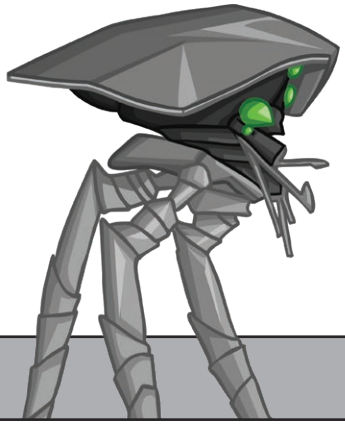
Look at this **incorrectly** completed SATs question.

- 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. The numbers in this sequence decrease by the same amount each time.

| | | | |
|---|---|---|---|
| 303,604 | 302,604 | 301,604 | 300,604 |

What is the next number in the sequence? 200,604

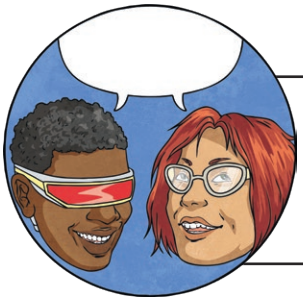


Colour in the superhero strength-o-meter to show how you feel about each of these questions:

**Can you count forwards or backwards in steps of powers of 10?**

**Can you count forwards or backwards in multiples?**

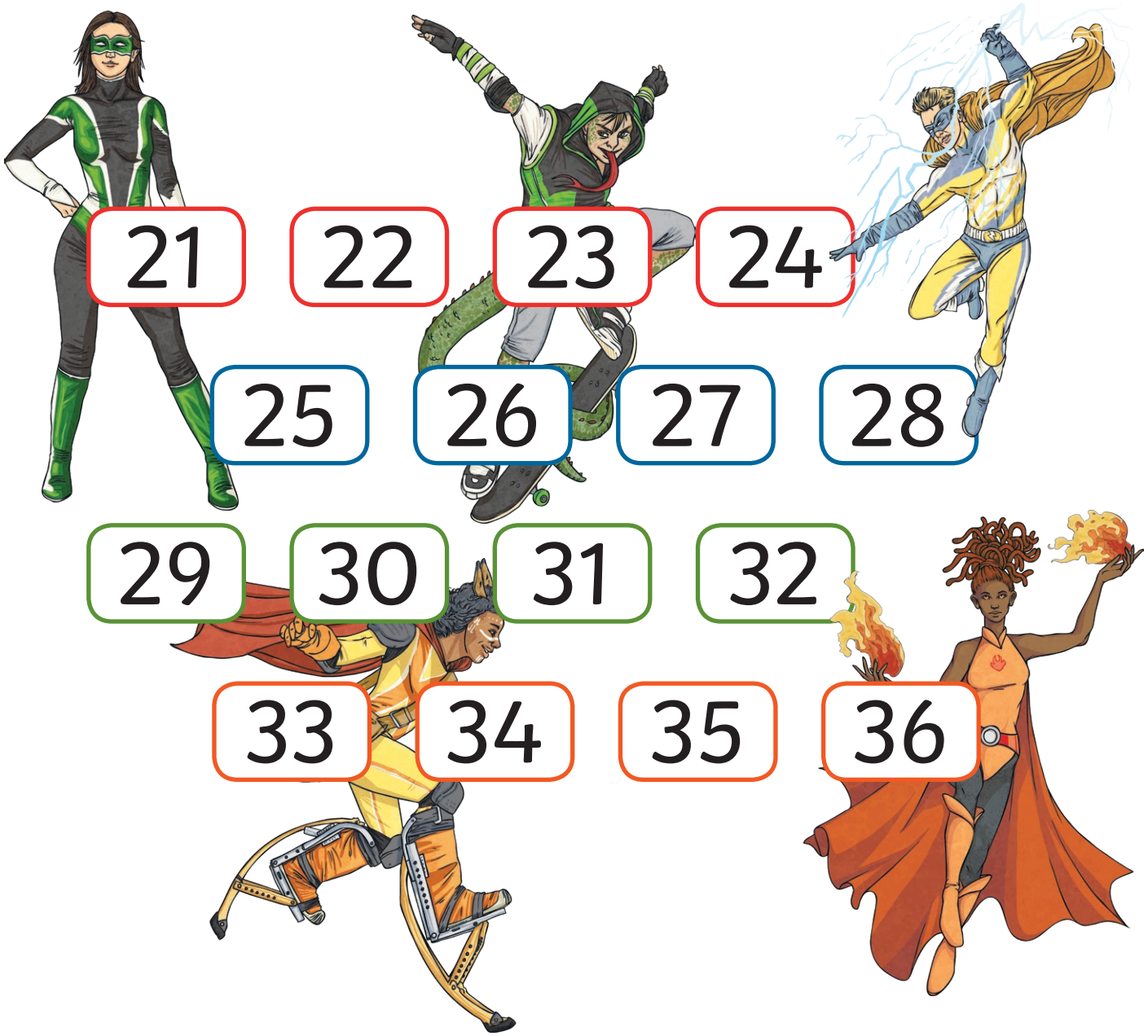
**Can you solve problems involving number sequences?**



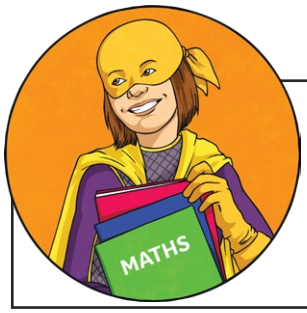
Look at the superhero numbers.

- Can you describe the numbers using the following vocabulary?

| multiple | factor | prime | square | cube |
|---|---|---|---|---|



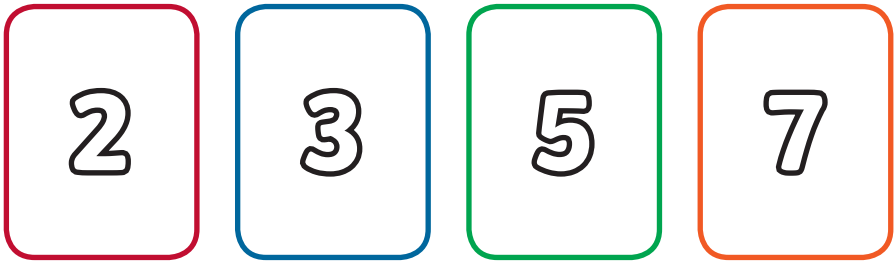

**Extra Challenge:** Play a game of number tennis with a friend. Choose a two-digit number. Take it in turns to give one fact about the properties of the number. How long will the number volley last? You score a point if your partner cannot think of a new number fact!




Look carefully at these problems involving properties of numbers.

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

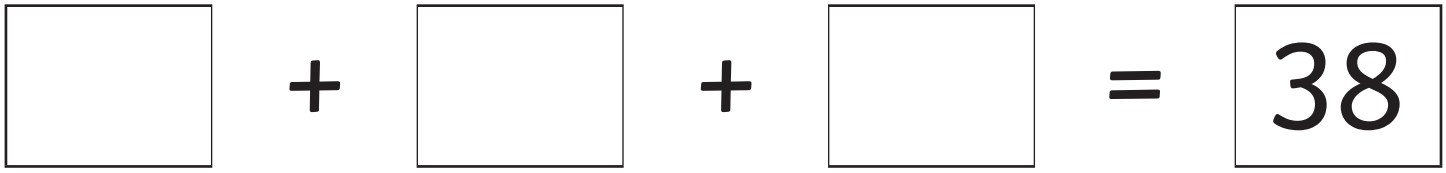
1. Here are four digit cards:



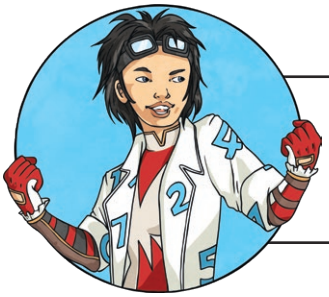

Use the digit cards to make all of the two-digit numbers that fit each statement:

| | |
|---|---|
| **Odd numbers** | |
| **Multiples of seven** | |
| **Prime numbers** | |
| **Factors of 100** | |

2. Complete this calculation using three different prime numbers:




3. Find all the factors of 108 that are not factors of 36.



Have a go at solving these problems.

1. Here are four digit cards:


Use the digit cards to make all of the two-digit numbers that fit each statement:

| | |
|---|---|
| **Odd numbers** | |
| **Multiples of three** | |
| **Prime numbers** | |
| **Factors of 100** | |

2. Complete this calculation using three different prime numbers:

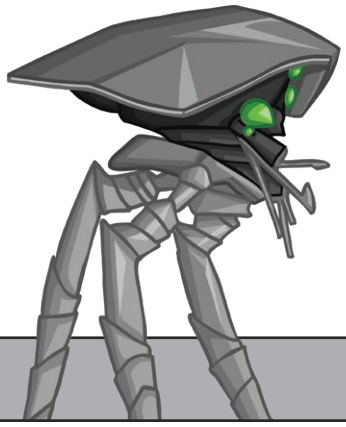

3. Find all the factors of 132 that are **not** factors of 60.

Look at this **incorrectly** completed SATs 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. Find all the factors of 24 that are also prime numbers.

1, 2, 5



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

**Can you identify common factors and multiples?**

**Can you identify prime numbers?**

**Can you solve problems involving properties of numbers?**

Look at the fractions.

- Can you identify the numerators and denominators the superheroes are hiding?

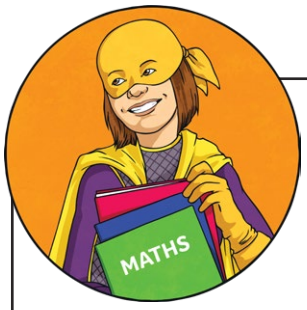
$$\frac{5}{6} = \frac{20}{\square} = \frac{\square}{12}$$

$$\frac{3}{5} = \frac{24}{\square} = \frac{\square}{10}$$

$$\frac{7}{8} = \frac{28}{\square} = \frac{\square}{16}$$

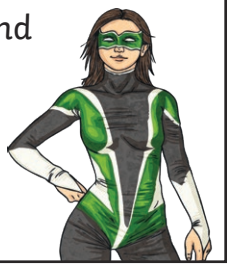
$$\frac{11}{25} = \frac{44}{\square} = \frac{\square}{1000}$$

**Extra Challenge:** Can you give a different equivalent fraction for each fraction chain?




Look carefully at these problems involving comparing and ordering fractions.

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



1. Write these fractions in order from smallest to greatest:

$\frac{4}{5}$ $1\frac{1}{2}$ $\frac{7}{10}$ $\frac{5}{7}$

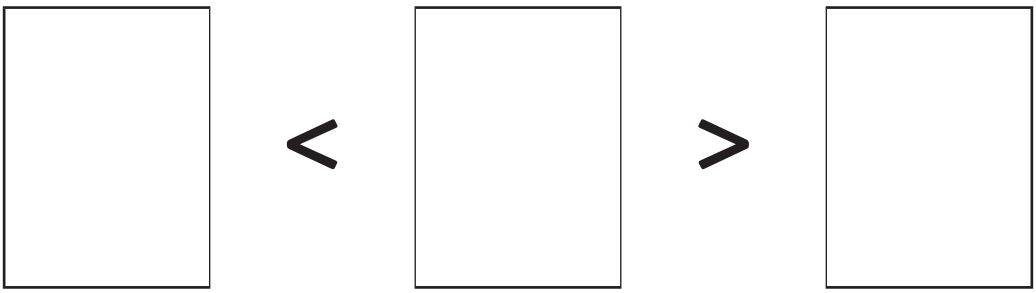
_____ _____ _____ _____

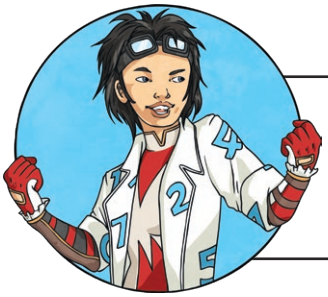
smallest greatest

2. Here are four fraction cards.

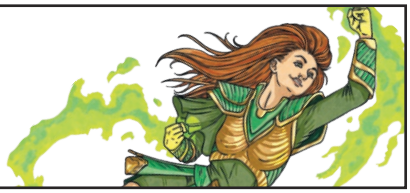
$\frac{2}{3}$ $\frac{5}{6}$ $\frac{7}{9}$ $\frac{6}{12}$

Use any three of the cards to make this comparing statement correct:





Have a go at solving these problems.



1. Write these fractions in order from smallest to greatest:

$\frac{13}{18}$ $1\frac{1}{3}$ $\frac{3}{4}$ $\frac{5}{9}$

_____ _____ _____ _____

smallest greatest

2. Here are four fraction cards.

| | | | |
|---|---|---|---|
| $\frac{2}{5}$ | $\frac{5}{6}$ | $\frac{7}{10}$ | $\frac{5}{9}$ |

Use any three of the cards to make this comparing statement correct:

| | | | | |
|---|---|---|---|---|
| | < | | > | |

Look at this **incorrectly** completed SATs question.

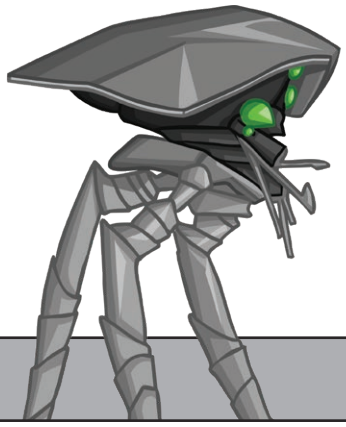
- What is the important information to identify?
- How is it best to work out the answer?
- What advice would you give to the child who completed this question?

$\frac{4}{7}$ is greater than $\frac{3}{5}$

Is this correct? (Yes) / No

Explain your reasoning:

Because the numerator 4 is greater than the numerator 3.

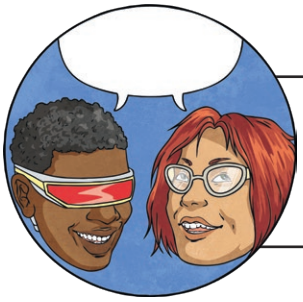


Colour in the superhero strength-o-meter to show how you feel about each of these questions:

**Can you find equivalent fractions?**

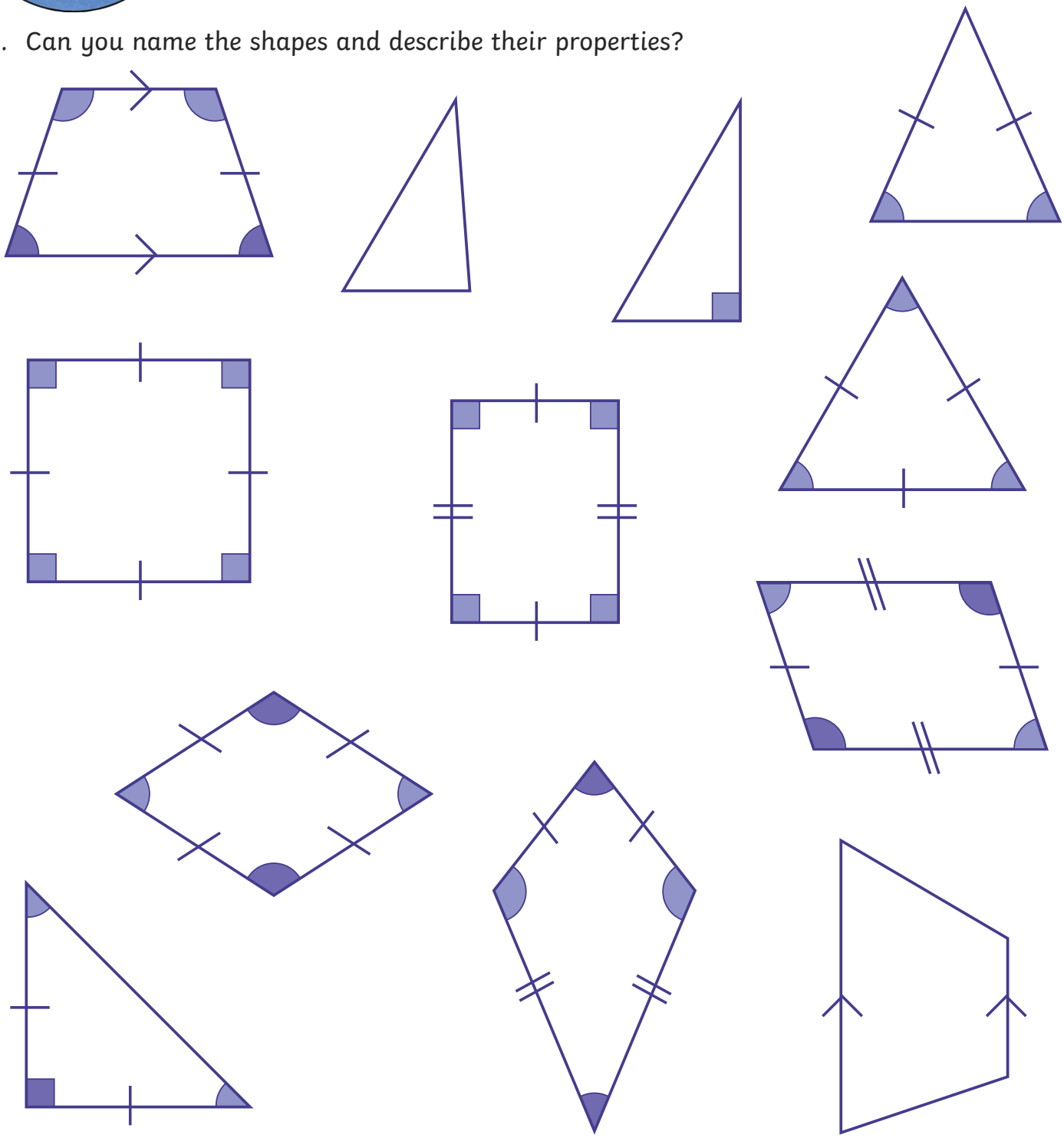
**Can you order and compare fractions with different denominators?**

**Can you order and compare fractions with different denominators?**

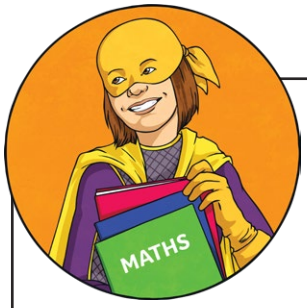


Look at the different triangles and quadrilaterals.

1. Can you name the shapes and describe their properties?



**Extra Challenge:** One player secretly chooses a 2D shape. The other players must identify which 2D shape it is by asking questions about the properties which can only be answered using yes or no. Who can identify the shape with the fewest questions?




Look carefully at these problems involving the properties of 2D shapes.

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

1. A parallelogram has a perimeter of 18cm.

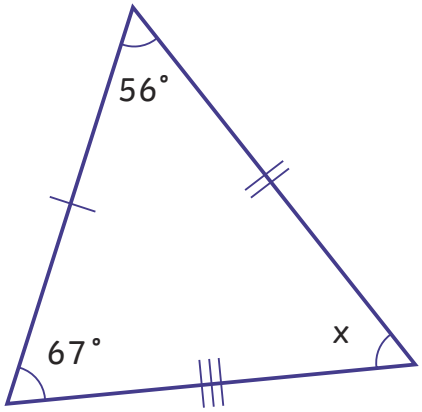
   What could the length and width of this shape be?

   Give two possible answers.

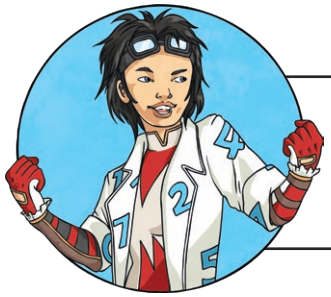
   _____ cm and _____ cm

   _____ cm and _____ cm

2. Here is a triangle with two of the angles labelled. Calculate the size of angle x.




3. On the grid below, draw an irregular pentagon with one angle measuring 90°.



Have a go at solving these problems.

1. A kite has a perimeter of 20cm.

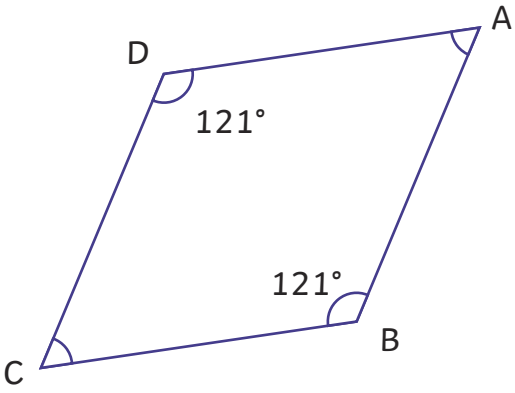
   What could the lengths of two opposite sides be?

   Give two possible answers.

   _____ cm and _____ cm

   _____ cm and _____ cm

2. Here is a rhombus with two of the angles labelled. Calculate the size of angle A.



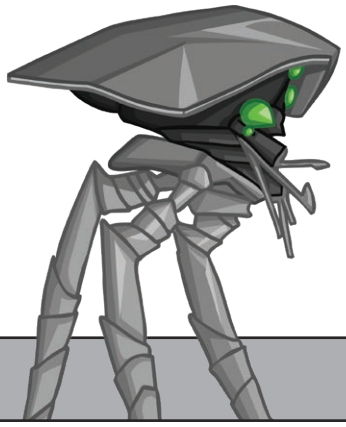

3. On the grid below, draw an irregular heptagon with one angle measuring 135°.

Look at this **incorrectly** completed SATs 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. Complete the table to show the size of the angles in each triangle.

| Type of triangle | Angle 1 | Angle 2 | Angle 3 |
|---|---|---|---|
| Isosceles | 90° | 50° | 40° |
| Right-angled | 80° | 90° | 20° |
| Isosceles | 70° | 50° | 50° |
| Isosceles | 70° | 70° | 45° |

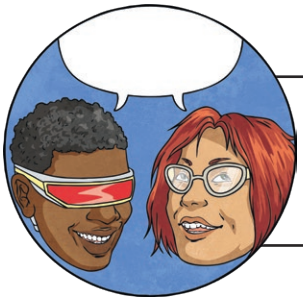


Colour in the superhero strength-o-meter to show how you feel about each of these questions:

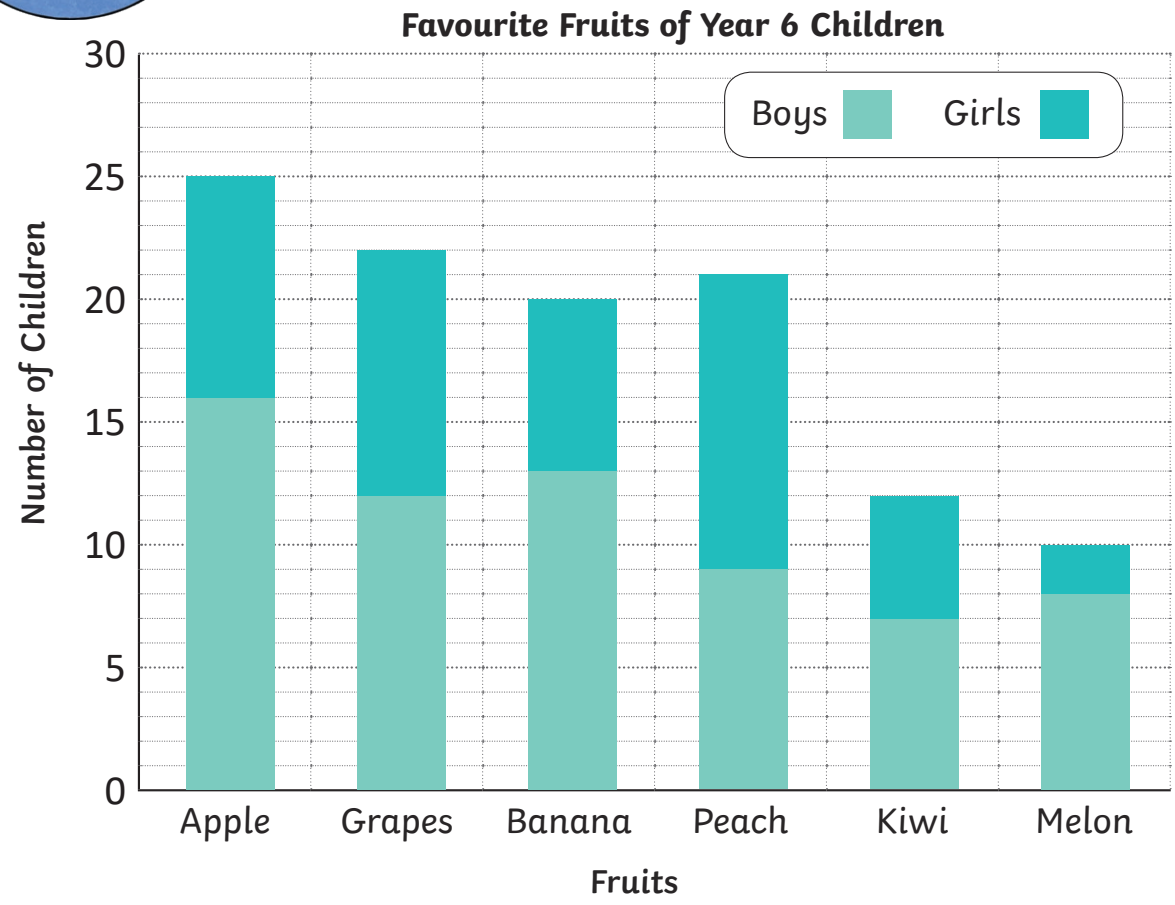
**Can you describe the properties of different triangles and quadrilaterals?**

**Can you calculate missing angles in triangles and quadrilaterals?**

**Can you draw 2D shapes using given dimensions and angles?**

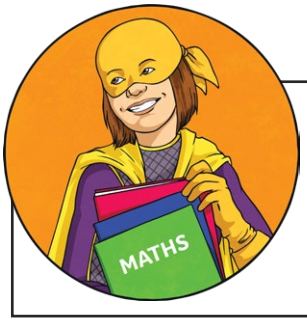


Look carefully at this bar chart which shows the favourite fruits of a group of children.




- Which fruit received the most votes from girls? _____
- How many more boys than girls voted for banana? _____
- How many fewer boys than girls voted for peach? _____

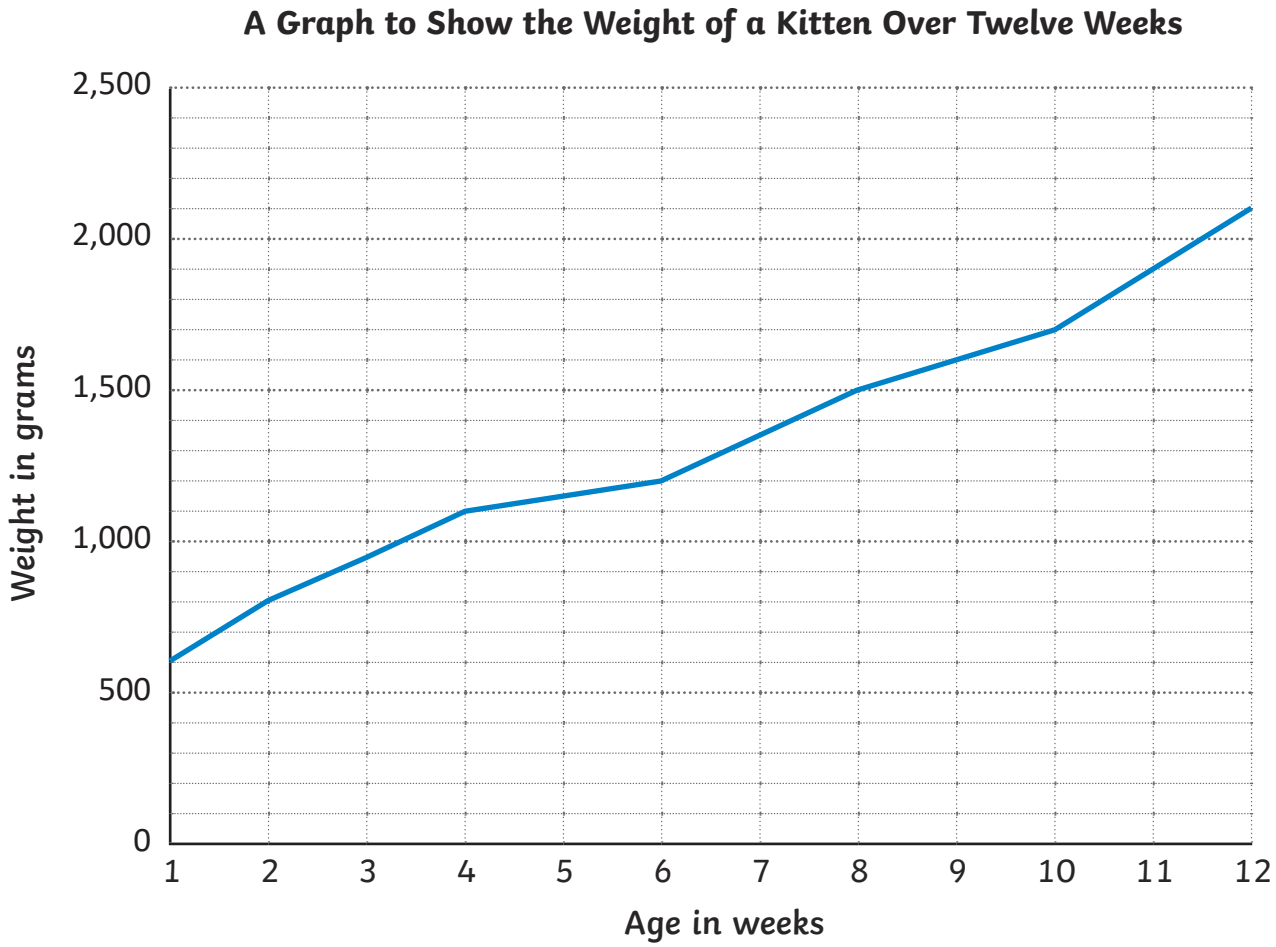
**Extra Challenge:** Can you work out how many children voted for their favourite fruit altogether? Can you make up your own questions about the data shown in this bar chart?




Look carefully at the questions about this line graph.

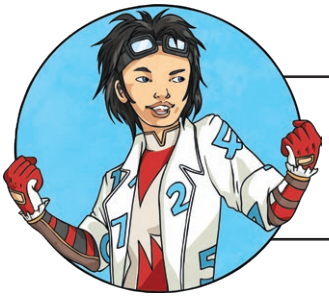
- What do we have to do to answer the question?
- What important information do we have to identify?

1. This graph shows the weight of a kitten over twelve weeks.



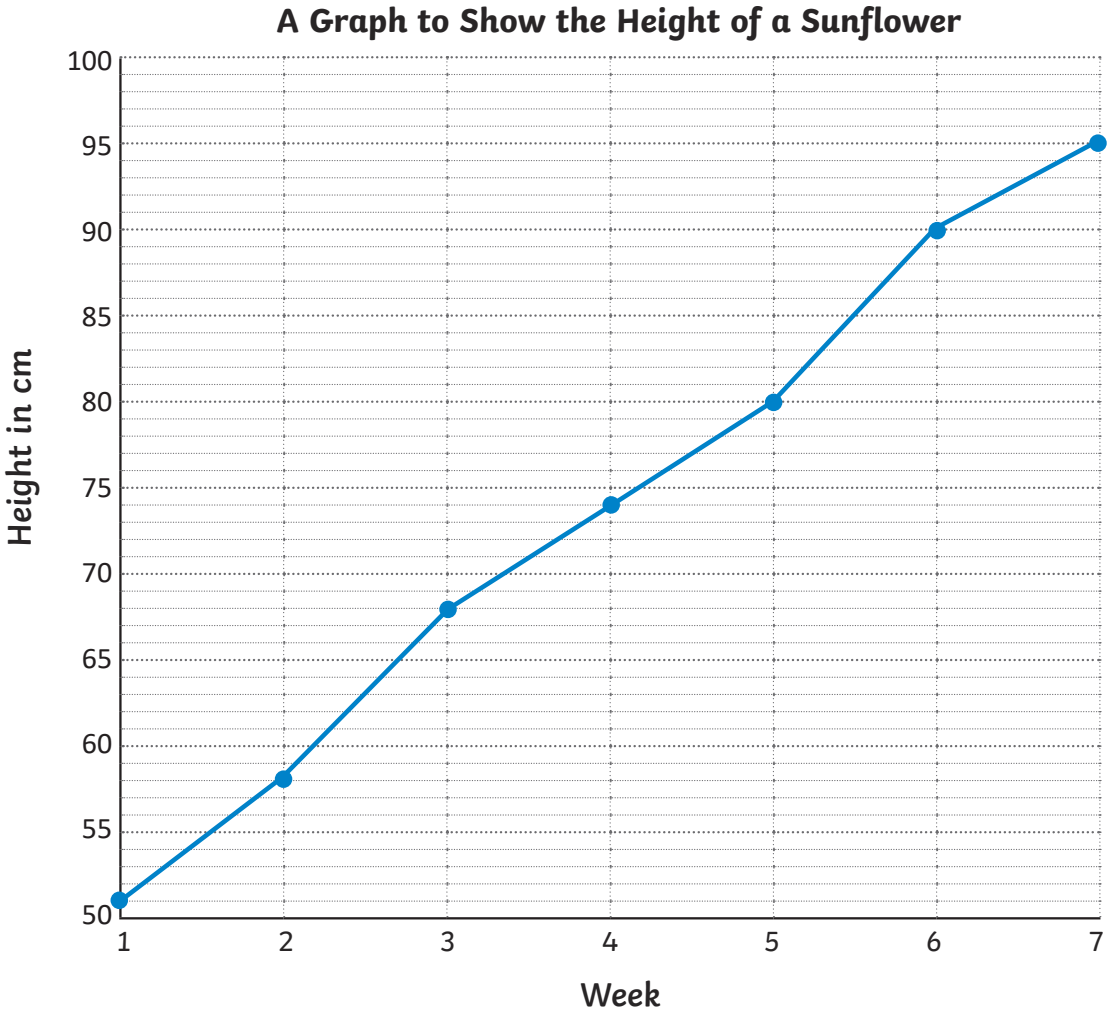

Estimate the weight of the kitten when it was 8 and a half weeks old.

By how many grams did the kitten's weight increase from week 4 to week 10?



Have a go at solving these problems.

This graph shows the height of a sunflower measured over seven weeks.



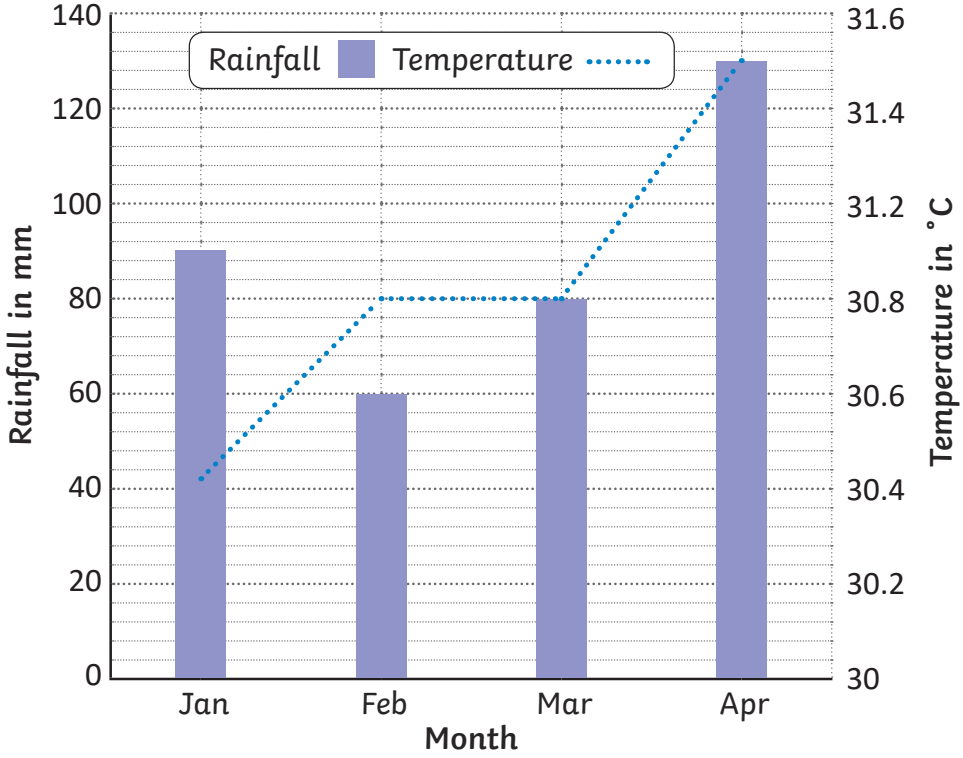

Estimate the height of the sunflower after two and a half weeks.

By how many centimetres did the sunflower grow from week 3 to week 6?

Look at this **incorrectly** completed SATs 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. This graph shows the average temperature and rainfall in a rainforest during the rainy season.




What percentage of the total rainfall for the rainy season happened in January?

50%

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