

Week 5

This week in a nutshell:

Questions 1-4 maintain familiarity for the students so as not to be overwhelming. Question 5 looks at Pythagoras' Theorem and concentrates on calculating one of the shorter sides with the length of the hypotenuse given. Once again, the questions involve Pythagorean triples so there is discretion available as to whether calculators should be used every day.

Question 1: Expanding single brackets

Question 2: Handwritten calculation (\times and \div)

Question 3: Improper fractions and mixed numbers

Question 4: Bar charts

Question 5: Pythagoras' Theorem (finding a shorter side)

The questions aim to develop and deepen understanding over the week. Due to the necessity of the topics covered this week, there is an emphasis on the interchangeability of command words, and language flexibility. It may be worth taking some extra time this week to make sure your students are developing their mathematical literacy.

This week's ideas for class discussion include:

Question 1: **Expanding single brackets**

- Are we expanding or removing the brackets?

Question 2: **Handwritten calculation (\times and \div)**

- *reflect on previous learning*

Question 3: **Improper fractions and mixed numbers**

- Is a mixed number a special case of a fraction?

Question 4: **Bar charts**

- Why are bar charts commonly used?

Question 5: **Pythagoras' Theorem (finding a shorter side)**

- Is it possible to have a right-angled triangle where Pythagoras' Theorem doesn't work?

Week 5: Day 1

1) Expand:

$$4(3 - 2z) =$$

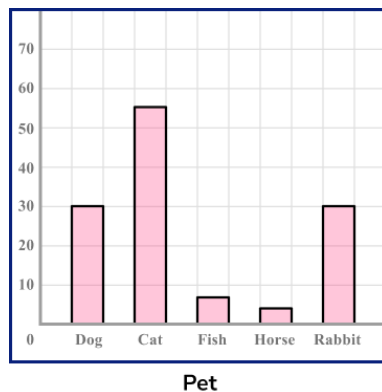
2) Calculate:

$$63 \times 14 =$$

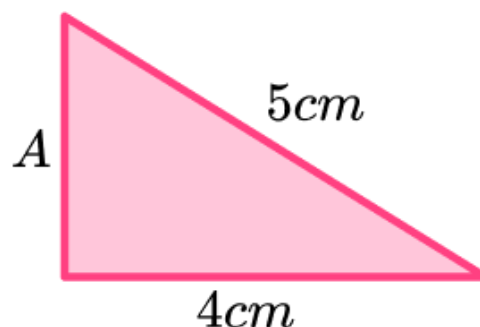
3) Write as a mixed number:

$$\frac{23}{7} =$$

4) Using the bar chart showing pet ownership, what was the most popular pet?



5) Use Pythagoras' Theorem to determine the length of side A in this right-angled triangle.



Week 5: Day 1 Answers

1) Expand:

$$4(3 - 2z) = 12 - 8z$$

2) Calculate:

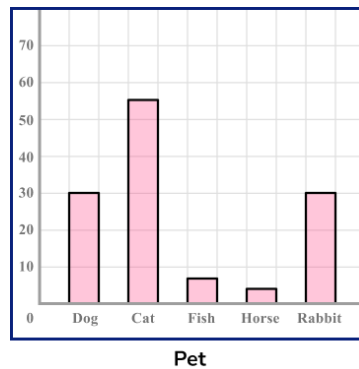
$$63 \times 14 = 882$$

3) Write as a mixed number:

$$\frac{23}{7} = 3\frac{2}{7}$$

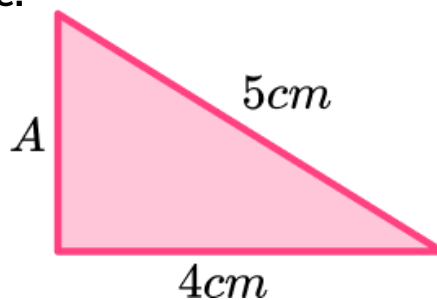
4) Using the bar chart showing pet ownership, what was the most popular pet?

cat



5) Use Pythagoras' Theorem to determine the length of side *A* in this right-angled triangle.

3cm



Week 5: Day 2

- 1) Expand:

$$2(3x - y) =$$

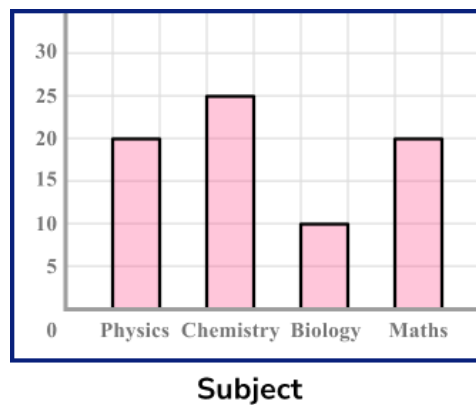
- 2) Calculate:

$$8 \times 173 =$$

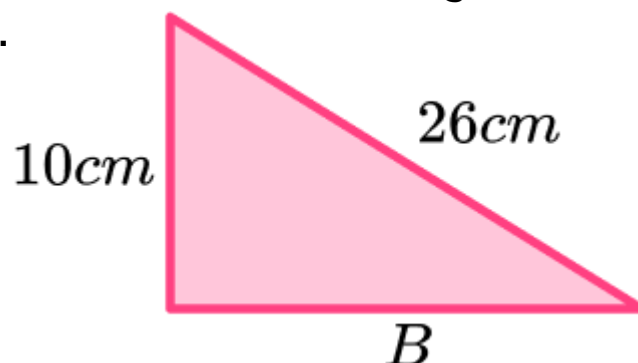
- 3) Write as an improper fraction:

$$2\frac{3}{5} =$$

- 4) Using the bar chart, work out how many students were asked to state their favourite subject.



- 5) Use Pythagoras' Theorem to determine the length of side B in this right-angled triangle.



Week 5: Day 2 Answers

1) Expand:

$$2(3x - y) = 6x - 2y$$

2) Calculate:

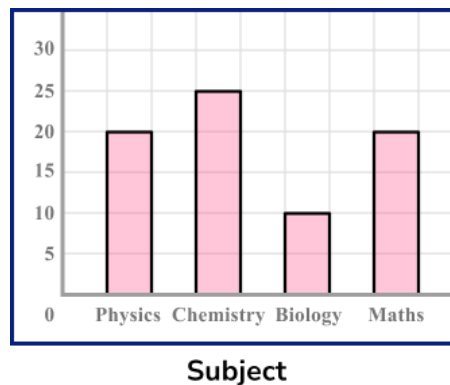
$$8 \times 173 = 1384$$

3) Write as an improper fraction:

$$2\frac{3}{5} = \frac{13}{5}$$

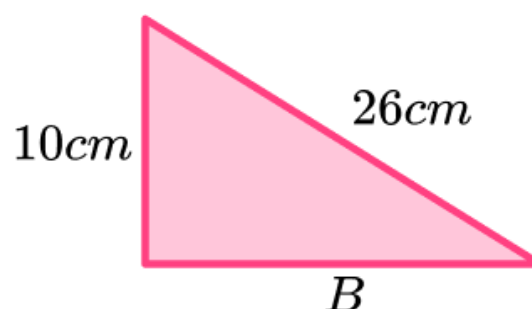
4) Using the bar chart, work out how many students were asked to state their favourite subject.

75



5) Use Pythagoras' Theorem to determine the length of side B in this right-angled triangle.

24cm



Week 5: Day 3

- 1) Expand:

$$x(1 - 7x) =$$

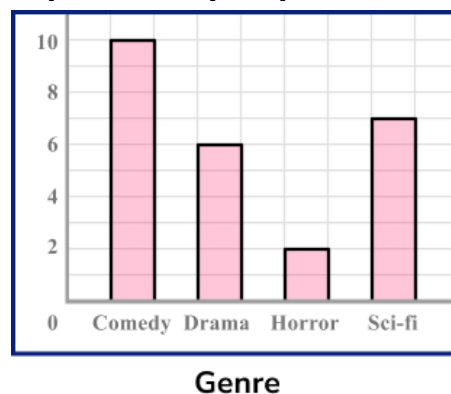
- 2) Calculate the quotient:

$$276 \div 6 =$$

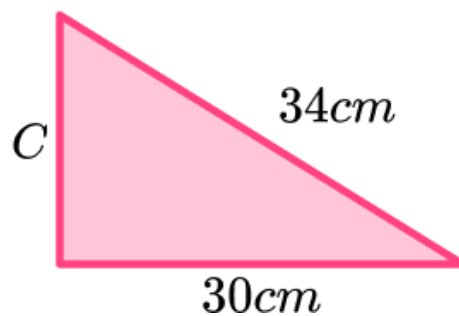
- 3) Write as a mixed number:

$$\frac{65}{9} =$$

- 4) How many more people surveyed preferred sci-fi to horror?



- 5) Use Pythagoras' Theorem to determine the length of side C in this right-angled triangle



Week 5: Day 3 Answers

1) Expand:

$$x(1 - 7x) = x - 7x^2$$

2) Calculate the quotient:

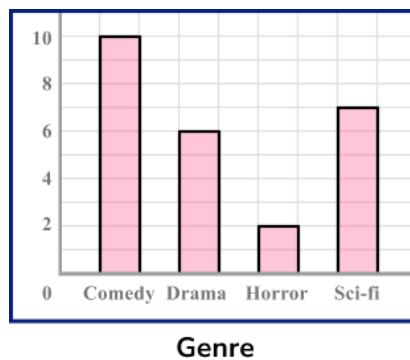
$$276 \div 6 = 46$$

3) Write as a mixed number:

$$\frac{65}{9} = 7\frac{2}{9}$$

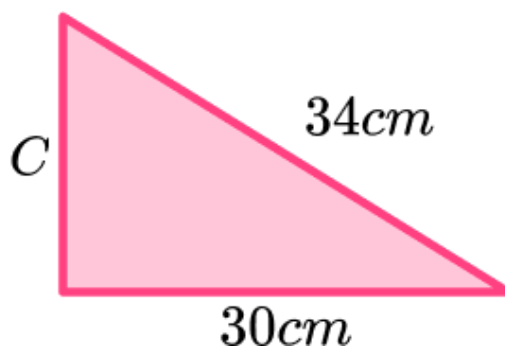
4) How many more people surveyed preferred sci-fi to horror?

5



5) Use Pythagoras' Theorem to determine the length of side C in this right-angled triangle.

16cm



Week 5: Day 4

- 1) Expand and simplify:

$$5(2 - x) + 8x =$$

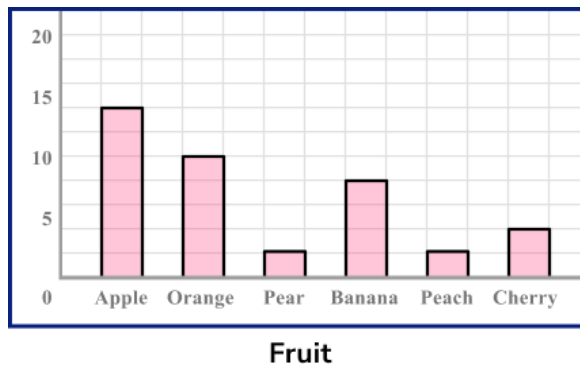
- 2) Calculate:

$$22 \times 75 =$$

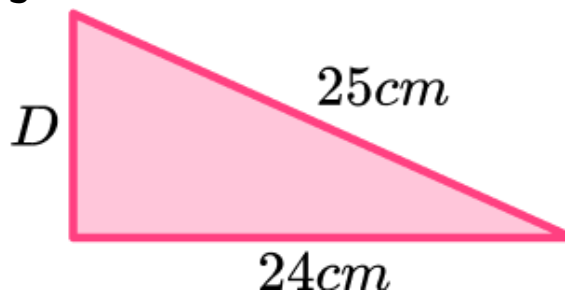
- 3) Write as a mixed number:

$$\frac{47}{6} =$$

- 4) How many people said that banana was their favourite fruit?



- 5) Use Pythagoras' Theorem to determine the length of side D in this right-angled triangle



Week 5: Day 4 Answers

- 1) Expand and simplify:

$$5(2 - x) + 8x = 10 - 5x + 8x \\ = 10 + 3x$$

- 2) Calculate:

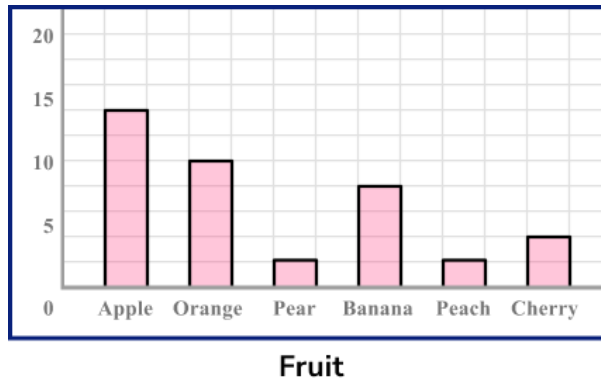
$$22 \times 75 = 1650$$

- 3) Write as a mixed number:

$$\frac{47}{6} = 7\frac{5}{6}$$

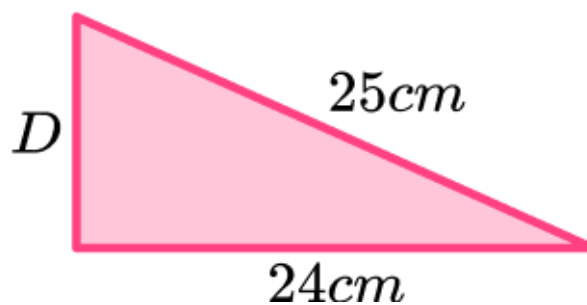
- 4) How many people said that banana was their favourite fruit?

8



- 5) Use Pythagoras' Theorem to determine the length of side D in this right-angled triangle.

7cm



Week 5: Day 5

- 1) Expand and simplify:

$$2(5x - 2) - 3(2x - 5) =$$

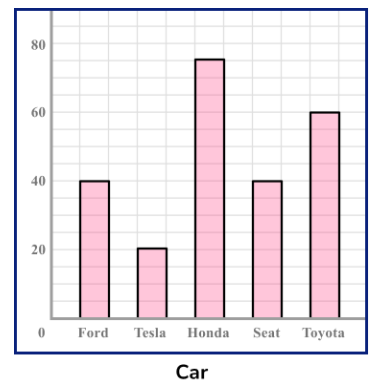
- 2) Determine the quotient and remainder:

$$1381 \div 9 =$$

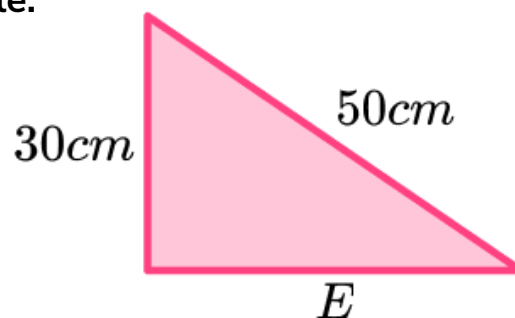
- 3) Write as an improper fraction:

$$5\frac{2}{3} =$$

- 4) How many more Toyotas were parked than Teslas?



- 5) Use Pythagoras' Theorem to determine the length of side E in this right-angled triangle.



Week 5: Day 5 Answers

- 1) Expand and simplify:

$$\begin{aligned} & 2(5x - 2) - 3(2x - 5) \\ &= 10x - 4 - 6x + 15 \\ &= 4x + 11 \end{aligned}$$

- 2) Determine the quotient and remainder:

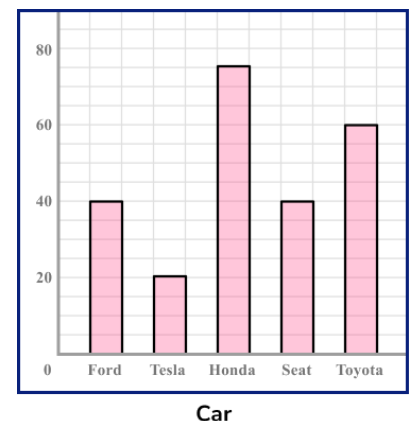
$$1381 \div 9 = 153 \text{ r}4$$

- 3) Write as an improper fraction:

$$5\frac{2}{3} = \frac{17}{3}$$

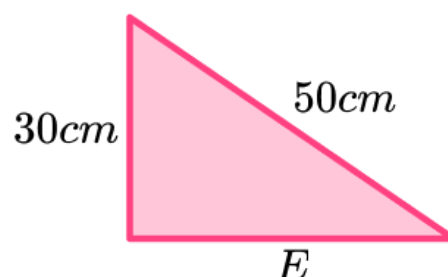
- 4) How many more Toyotas were parked than Teslas?

40



- 5) Use Pythagoras' Theorem to determine the length of side E in this right-angled triangle.

40cm



Do you have KS4 students who need additional support in maths?

Our specialist tutors will help them develop the skills they need to succeed at GCSE in weekly one to one online revision lessons. Trusted by secondary schools across the UK. Visit thirdspacelearning.com to find out more.