

Week 10

This week in a nutshell:

Questions 1, 2 & 3 focus on skills that are part of the mathematical toolkit; students should be encouraged to understand that moving between representations (as in question 3) means greater flexibility when solving problems. Question 4 covers finding angles when more than one rule may be needed; skills often do not exist in isolation and it is worth reminding students of this. Question 5 involves looking at probability for the first time; aim to deal with any misconceptions early.

Question 1: Increase/decrease by a given percentage

Question 2: Handwritten calculation

Question 3: Fractions, decimals and percentages

Question 4: Finding missing angles

Question 5: Probability (single events)

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: **Increase/decrease by a given percentage**

- Is there more than one way to increase/decrease by a percentage?

Question 2: **Handwritten calculation**

- How has the way you compose handwritten calculations changed since year 7?

Question 3: **Fractions, decimals and percentages**

- Would it be easier if we just used one of these forms?
- Which would you keep and why?

Question 4: **Finding missing angles**

- Are the angles missing, or unknown?

Question 5: **Probability (single events)**

- What is probability?
- Can we be sure of a given probability?

Week 10: Day 1

- 1) Increase 85 by 20%.

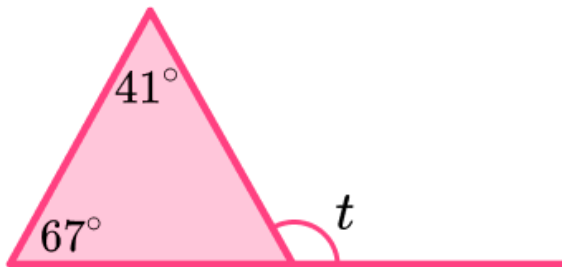
- 2) Calculate:

$$981 - 435 =$$

- 3) Write the decimal number as a fraction in its simplest form:

$$0.6 =$$

- 4) Work out the size of angle t .



- 5) What is the probability of rolling an even number on a standard 6-sided dice?



Week 10: Day 1 Answers

- 1) Increase 85 by 20%.

102

- 2) Calculate:

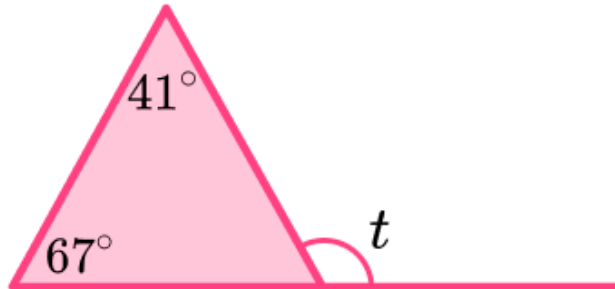
$$981 - 435 = 546$$

- 3) Write the decimal number as a fraction in its simplest form:

$$0.6 = \frac{3}{5}$$

- 4) Work out the size of angle t .

108°



- 5) What is the probability of rolling an even number on a standard 6-sided dice? $\frac{1}{2}$



Week 10: Day 2

- 1) Increase 340 by 15%.

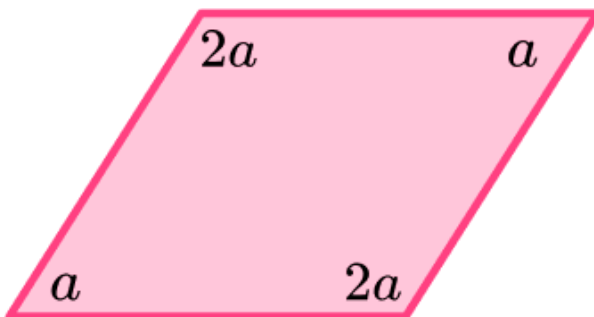
- 2) Calculate:

$$127 + 403 + 218 =$$

- 3) Write the decimal number as a percentage:

$$2.74 =$$

- 4) Given that this is a parallelogram, what is the size of angle a ?



- 5) What is the probability of choosing a vowel at random from the word below?

M A T H E M A T I C S

Week 10: Day 2 Answers

- 1) Increase 340 by 15%.

391

- 2) Calculate:

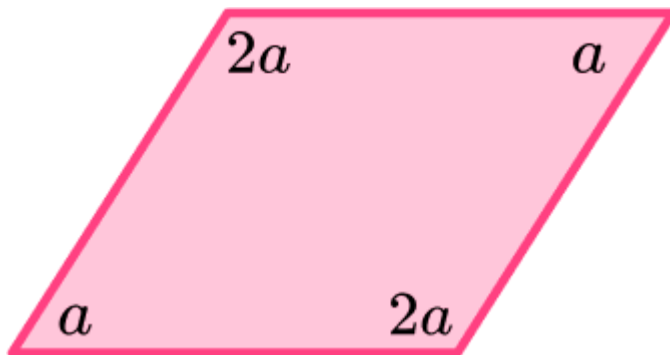
$$127 + 403 + 218 = 748$$

- 3) Write the decimal number as a percentage:

$$2.74 = 274\%$$

- 4) Given that this is a parallelogram, what is the size of angle a ?

60°



- 5) What is the probability of choosing a vowel at random from the word below?

$$\frac{4}{11}$$

M A T H E M A T I C S

Week 10: Day 3

- 1) Decrease 900 by 35%.

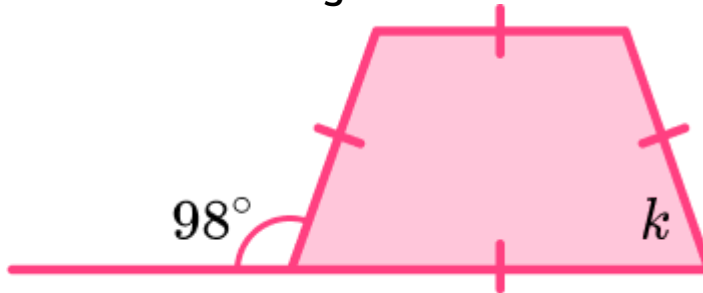
- 2) Calculate:

$$307 - 198 =$$

- 3) Write the fraction as a percentage:

$$\frac{17}{20} =$$

- 4) Work out the size of angle k .



- 5) When selecting a card from a standard deck of playing cards, what is the probability of choosing a red queen?



Week 10: Day 3 Answers

- 1) Decrease 900 by 35%.

585

- 2) Calculate:

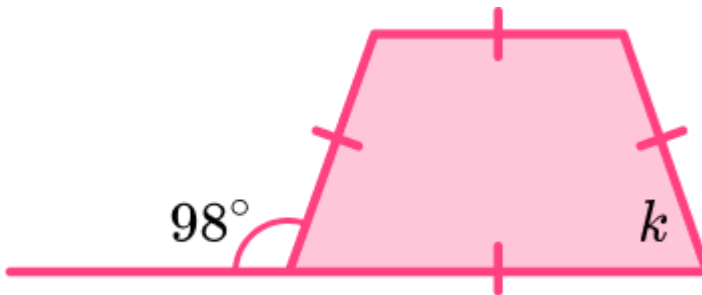
$$307 - 198 = 109$$

- 3) Write the fraction as a percentage:

$$\frac{17}{20} = 85\%$$

- 4) Work out the size of angle k .

82°



- 5) When selecting a card from a standard deck of playing cards, what is the probability of choosing a red queen?

$$\frac{1}{26}$$



Week 10: Day 4

- 1) Increase 12.5 by 40%

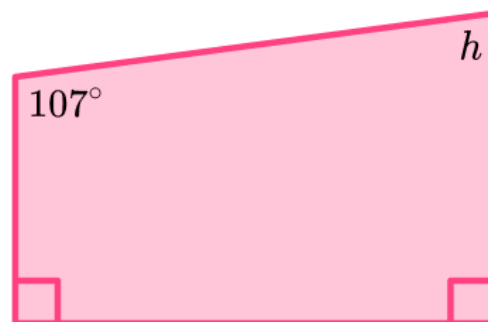
- 2) Calculate:

$$1773 \div 9 =$$

- 3) Write the percentage as a decimal number:

$$32\% =$$

- 4) Work out the size of angle h .



- 5) What is the probability of rolling a number that is not divisible by 3 on a standard 6-sided dice?



Week 10: Day 4 Answers

- 1) Increase 12.5 by 40%.

17.5

- 2) Calculate:

$$1773 \div 9 = 197$$

- 3) Write the percentage as a decimal number:

$$32\% = 0.32$$

- 4) Work out the size of angle h .

73°



- 5) What is the probability of rolling a number that is not divisible by 3 on a standard 6-sided dice?

$\frac{2}{3}$



Week 10: Day 5

- 1) Decrease 256 by 37.5%.

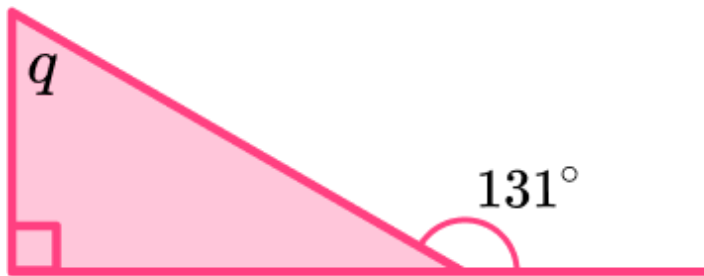
- 2) Calculate:

$$29 \times 37 =$$

- 3) Write the fraction as a percentage:

$$\frac{5}{8} =$$

- 4) Work out the size of angle q .



- 5) A number is chosen at random from the following set of numbers,

{11, 12, 13, 14, 15, 16, 17, 18, 19, 20}

What is the probability of choosing a prime number?

Week 10: Day 5 Answers

- 1) Decrease 256 by 37.5%.

160

- 2) Calculate:

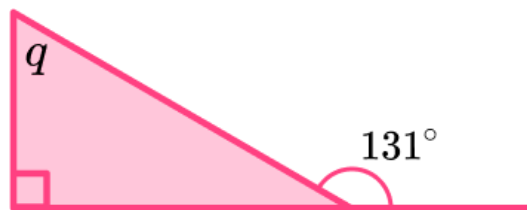
$$29 \times 37 = 1073$$

- 3) Write the fraction as a percentage:

$$\frac{5}{8} = 62.5\%$$

- 4) Work out the size of angle q .

41°



- 5) A number is chosen at random from the following set of numbers,

{11, 12, 13, 14, 15, 16, 17, 18, 19, 20}

What is the probability of choosing a prime number?

$\frac{2}{5}$

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