

Week 9

This week in a nutshell:

This week sees some concepts from algebra that will be extended throughout high school, particularly the ideas of equations and identities, as well as the distributive law. The number work will typically require pen and paper methods, and of course time can be taken to discuss the various methods available for these types of questions.

Question 1: Expression, equation and identity

Question 2: Further work with factors

Question 3: Written division

Question 4: Working with decimals

Question 5: Understanding the distributive law

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: **Expression, equation and identity**

- How would you explain the differences between expressions, equations and identities?

Question 2: **Further work with factors**

- Do you know any rules for checking divisibility?
- Are there rules of divisibility for all numbers?

Question 3: **Written division**

- Have you learned any new efficient methods for division?

Question 4: **Prime factors of square numbers**

- How many different contexts can you think of where decimals are used?

Question 5: **Understanding the distributive law**

- Why is this called the distributive law?
- How might you check your answers?

Week 9: Day 1

- 1) Is the following an expression, equation or identity?

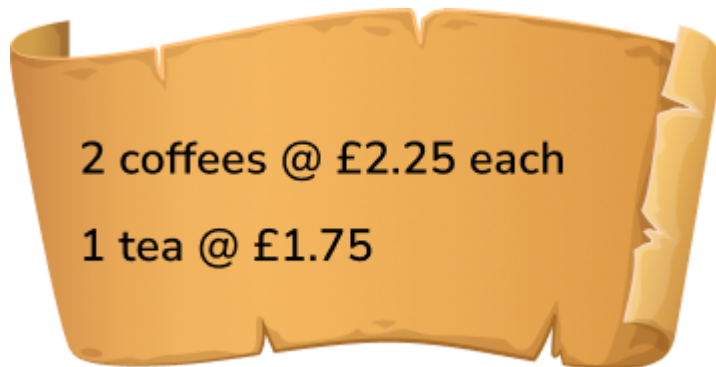
$$3x + 5 = 15$$

- 2) Determine if 4 is a factor of 52.
Give a reason for your answer.
-

- 3 Use a written method to evaluate

$$324 \div 3$$

- 4) Work out the total cost of this cafe bill.



- 5) Fill in the missing value to make this expansion correct.

$$3(x + 5) = 3x + \underline{\hspace{2cm}}$$

Week 9: Day 1 Answers

- 1) Is the following an expression, equation or identity?

$$3x + 5 = 15$$

Equation

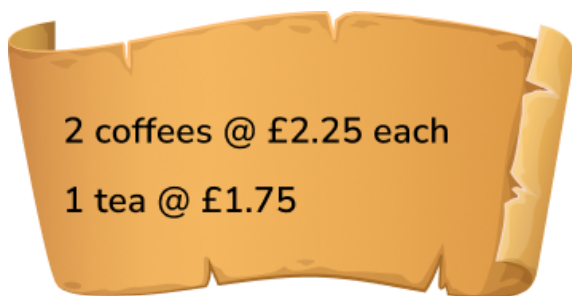
- 2) Determine if 4 is a factor of 52. Give a reason for your answer.

Yes, $52 \div 4 = 13$

- 3) Use a written method to evaluate

$$324 \div 3 = 108$$

- 4) Work out the total cost of this cafe bill.



£6.25

- 5) Fill in the missing value to make this expansion correct.

$$3(x + 5) = 3x + \underline{15}$$

Week 9: Day 2

- 1) Is the following an expression, equation or identity?

$$4a + 5c - a$$

- 2) Determine if 3 is a factor of 58. Give a reason for your answer.

- 3) Use a written method to calculate

$$315 \div 9$$

- 4) Work out the total cost of this cafe bill.



- 5) Fill in the missing value to make this expansion correct.

$$7(2x - 1) = \underline{\quad}x - 7$$

Week 9: Day 2 Answers

- 1) Is the following an expression, equation or identity?

$$4a + 5c - a$$

Expression

- 2) Determine if 3 is a factor of 58. Give a reason for your answer.

No, 3 does not divide 58 exactly

- 3) Use a written method to calculate

$$315 \div 9 = 35$$

- 4) Work out the total cost of this cafe bill.



£7.85

- 5) Fill in the missing value to make this expansion correct.

$$7(2x - 1) = 14x - 7$$

Week 9: Day 3

- 1) Is the following an expression, equation or identity?

$$3x + y \equiv x + y + x + x$$

- 2) Determine if 11 is a factor of 143. Give a reason for your answer.

- 3) Use a written method to work out

$$638 \div 5$$

- 4) Work out the total cost of this cafe bill.



- 5) Fill in the missing term to make this expansion correct.

$$2(3x + 2) = \underline{\quad} + 4$$

Week 9: Day 3 Answers

- 1) Is the following an expression, equation or identity?

$$3x + y \equiv x + y + x + x$$

Identity

- 2) Determine if 11 is a factor of 143. Give a reason for your answer.

Yes, $143 \div 11 = 13$

- 3) Use a written method to work out

$$638 \div 5 = 127 \text{ r}3$$

Or 127.6

- 4) Work out the total cost of this cafe bill.



£13.30

- 5) Fill in the missing term to make this expansion correct.

$$2(3x + 2) = \underline{6x} + 4$$

Week 9: Day 4

- 1) Is the following an expression, equation or identity?

$$5x^2 - x = 15$$

- 2) Determine if 9 is a factor of 162. Give a reason for your answer.

- 3) Use a written method to determine

$$555 \div 6$$

- 4) A cafe bill was £9.70. How much does a cake cost?



- 5) Fill in the missing term to make this expansion correct.

$$x(x - 2) = \underline{\quad} - 2x$$

Week 9: Day 4 Answers

- 1) Is the following an expression, equation or identity?

$$5x^2 - x = 15$$

Equation

- 2) Determine if 9 is a factor of 162. Give a reason for your answer.

Yes, $18 \times 9 = 162$

- 3) Use a written method to determine

$$555 \div 6 = 92 \text{ r}3$$

Or 92.5

- 4) A cafe bill was £9.70. How much does a cake cost? £1.50



- 5) Fill in the missing term to make this expansion correct.

$$x(x - 2) = \underline{x^2} - 2x$$

Week 9: Day 5

- 1) Is the following an expression, equation or identity?

$$2xy - 3xz + 5yz$$

- 2) Determine if 6 is a factor of 86. Give a reason for your answer.

- 3) Use a written method to work out

$$102.4 \div 8$$

- 4) The bill in a cafe was £12.20. How many coffees were purchased?



- 5) Fill in the missing terms to make this expansion correct.

$$a(2 + 5a - b) = \underline{\hspace{2cm}} + 5a^2 - \underline{\hspace{2cm}}$$

Week 9: Day 5 Answers

- 1) Is the following an expression, equation or identity?

$$2xy - 3xz + 5yz$$

Expression

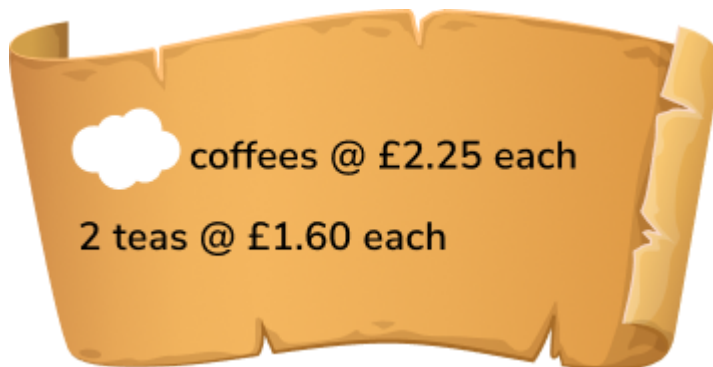
- 2) Determine if 6 is a factor of 86. Give a reason for your answer.

No, because 6 does not divide 86 exactly

- 3) Use a written method to work out

$$102.4 \div 8 = 12.8$$

- 4) The bill in a cafe was £12.20. How many coffees were purchased? 4



- 5) Fill in the missing terms to make this expansion correct.

$$a(2 + 5a - b) = 2a + 5a^2 - ab$$

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