

Week 10

This week in a nutshell:

Here we see the notion of an algebraic equation to be solved explicitly. Some students will be familiar with this already, some may not be expected to see this until a later stage. Students should still be encouraged to attempt these questions; several strategies can be used and questions are set in such a way that extension can be offered through method justification, or scaffolding issued to aid some students.

Question 1: Basic equations

Question 2: Expanding brackets

Question 3: Listing factors

Question 4: Decimals in context

Question 5: Equivalent expressions

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: **Basic equations**

- How far do you agree that algebra deals with missing numbers?
- How would you describe your method for these questions?

Question 2: **Expanding brackets**

- How can setting your work out help with these questions?

Question 3: **Listing factors**

- How do you know you have every factor?
- Why do we only consider integers as factors?

Question 4: **Decimals in context**

- Why do you think our currency has two decimal places?

Question 5: **Equivalent expressions**

- What does equivalent mean?
- How do we prove equivalence?

Week 10: Day 1

- 1) What value of x solves this equation?

$$x + 11 = 15$$

- 2) Expand $3(x + 2)$
-

- 3 List the factors of 24
-

- 4) Calculate the total of this receipt.



- 5) Which of these expressions are equivalent?

$$4x + 3x$$

$$9x - 2x$$

$$2x + 6x$$

Week 10: Day 1 Answers

- 1) What value of x solves this equation? $x = 4$

$$x + 11 = 15$$

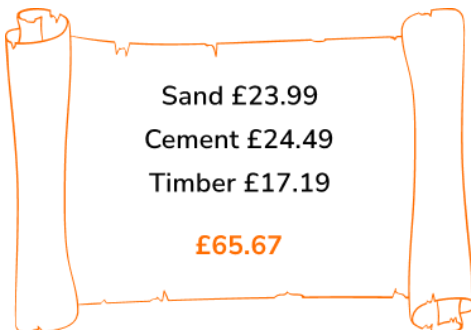
- 2) Expand $3(x + 2)$

$$3x + 6$$

- 3) List the factors of 24

1, 2, 3, 4, 6, 8, 12, 24

- 4) Calculate the total of this receipt.



- 5) Which of these expressions are equivalent?

$$4x + 3x$$

$$9x - 2x$$

$$\cancel{2x} + 6x$$

Week 10: Day 2

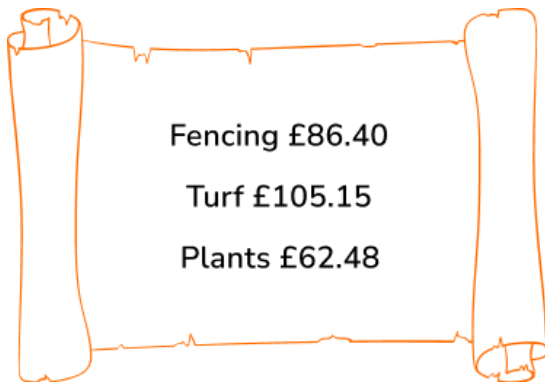
- 1) What value of x solves this equation?

$$x - 5 = 13$$

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

- 3) List the factors of 33

- 4) Calculate the total of this receipt.



- 5) Which of these expressions are equivalent?

$$2a + a + 2a$$

$$8a - 2a$$

$$6a - a$$

Week 10: Day 2 Answers

- 1) What value of x solves this equation? $x = 18$

$$x - 5 = 13$$

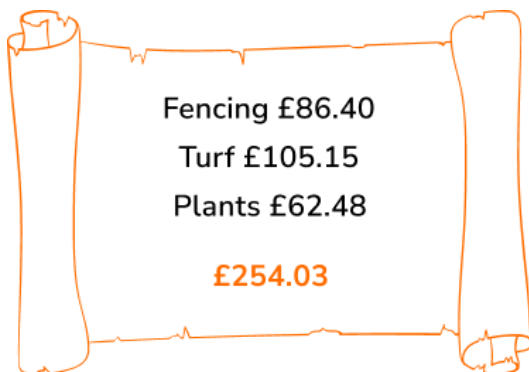
- 2) Expand $5(2x - 3)$

$$10x - 15$$

- 3) List the factors of 33

1, 3, 11, 33

- 4) Calculate the total of this receipt.



- 5) Which of these expressions are equivalent?

$$2a + a + 2a$$

$$8a - 2a$$

$$6a - a$$

Week 10: Day 3

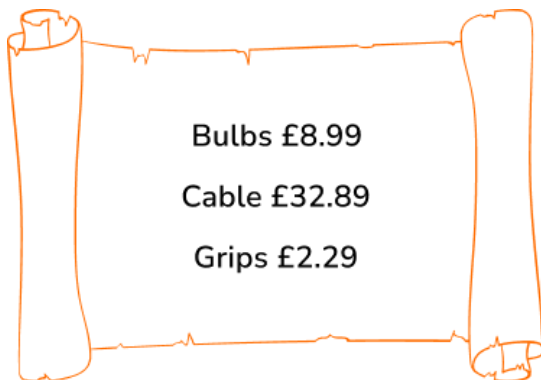
- 1) What value of x solves this equation?

$$6x = 42$$

- 2) Expand $x(2x + 1)$

- 3) List the factors of 34

- 4) Calculate the total of this receipt.



- 5) Which of these expressions are equivalent?

$$5n + m + 3n - 2m$$

$$2n + 9m - 5n$$

$$5m + 3n + 4m - 6n$$

Week 10: Day 3 Answers

- 1) What value of x solves this equation?

$$x = 7$$

$$6x = 42$$

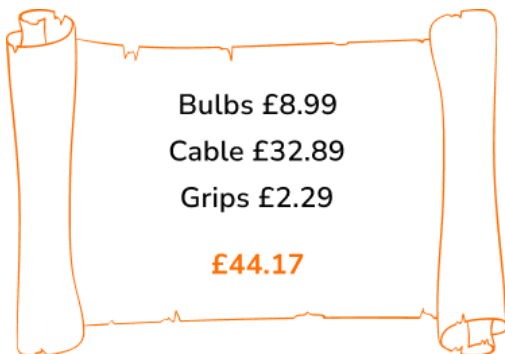
- 2) Expand $x(2x + 1)$

$$2x^2 + x$$

- 3) List the factors of 34

1, 2, 17, 34

- 4) How much did the storage cost?



- 5) Which of these expressions are equivalent?

$$5n + m + 3n - 2m$$

$$2n + 9m - 5n$$

$$5m + 3n + 4m - 6n$$

Week 10: Day 4

- 1) What value of x solves this equation?

$$\frac{x}{7} = 5$$

- 2) Expand $4y(x - y)$

- 3) List the factors of 44

- 4) How much did the storage cost?



- 5) Which of these expressions are equivalent?

$$4x + 2y - 4x$$

$$-5y + 7y$$

$$4y + 2x + 4x$$

Week 10: Day 4 Answers

- 1) What value of x solves this equation? $x = 35$

$$\frac{x}{7} = 5$$


- 2) Expand $4y(x - y)$

$$4xy - 4y^2$$

- 3) List the factors of 44

1, 2, 4, 11, 22, 44

- 4) How much did the storage cost?



Ladders	£67.99
Storage	£33.09
Racks	£17.49
TOTAL:	£118.57

- 5) Which of these expressions are equivalent?

$$4x + 2y - 4x$$

$$-5y + 7y$$

$$4y + 2x + 4x$$

Week 10: Day 5

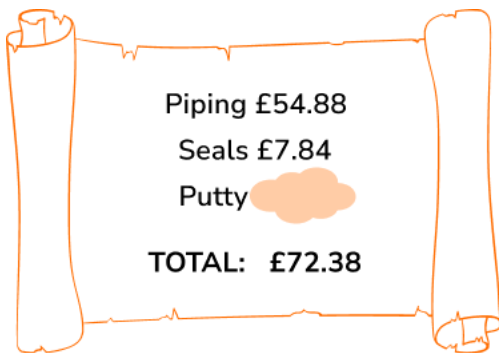
- 1) What value of x solves this equation?

$$\frac{32}{x} = 8$$

- 2) Expand $2x(3x + y - xy)$

- 3) List the factors of 54

- 4) How much did the putty cost?



- 5) Which of these expressions are equivalent?

$$4a - 3a + 2a$$

$$8a - 6a - 2a$$

$$3a - 7a + 4a$$

Week 10: Day 5

- 1) What value of x solves this equation? $x = 4$

$$\frac{32}{x} = 8$$

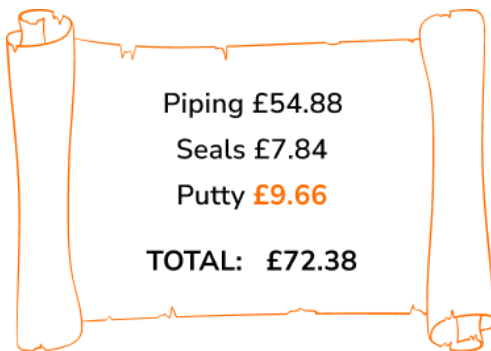
- 2) Expand $2x(3x + y - xy)$

$$6x^2 + 2xy - 2x^2y$$

- 3) List the factors of 54

1, 2, 3, 6, 9, 18, 27, 54

- 4) How much did the putty cost?



- 5) Which of these expressions are equivalent?

$$4a - 3a + 2a$$

$$8a - 6a - 2a$$

$$3a - 7a + 4a$$

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