

Week 3

This week in a nutshell:

There are some procedural type questions (questions 1 and 2), and some concept based questions. Being fluent in the underlying concepts allows students to attempt a broader range of problems in the future. Spending some time discussing these ideas before or after attempting the questions can lead to a deeper understanding and a love of problem solving.

Question 1: Ratios of amounts

Question 2: Collecting like terms

Question 3: Understanding reciprocals

Question 4: Writing ratio

Question 5: Representing fractions

This week's ideas for class discussion include:

Question 1: **Ratios of amounts**

- Is it essential to calculate every part of a ratio?

Question 2: **Collecting like terms**

- How much has your confidence changed in dealing with algebra this year?

Question 3: **Understanding reciprocals**

- How would you define a reciprocal?
- How can reciprocals be used in our working out?

Question 4: **Writing ratio**

- Why is the order we write the ratio important?

Question 5: **Representing fractions**

- What conditions have to be met for the boxes in these diagrams to be useful?

Week 3: Day 1

1) Share £35 in the ratio 1:4

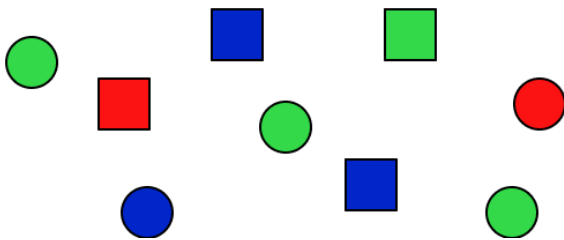
2) Simplify:

$$3a + 5a - 2a$$

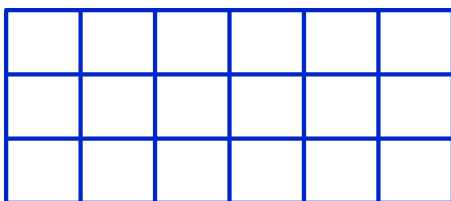
3) Fill in the missing number:

$$3 \times \frac{1}{\boxed{}} = 1$$

4) Write the ratio of squares to circles.



5) Shade $\frac{1}{3}$ of this rectangle.



Week 3: Day 1 Answers

- 1) Share £35 in the ratio 1:4 **£7 and £28**

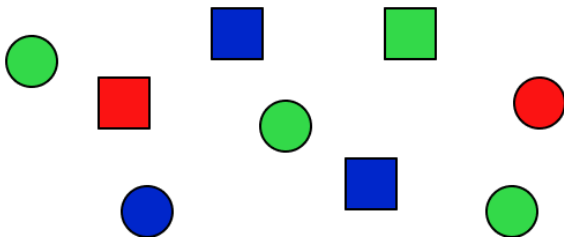
- 2) Simplify:

$$3a + 5a - 2a = \mathbf{6a}$$

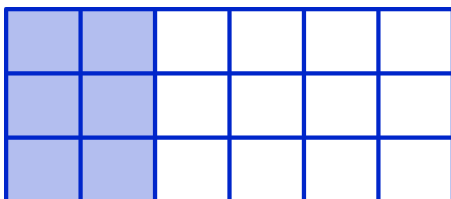
- 3) Fill in the missing number:

$$3 \times \frac{1}{\boxed{3}} = 1$$

- 4) Write the ratio of squares to circles. **4 : 5**



- 5) Shade $\frac{1}{3}$ of this rectangle. **6 boxes shaded, eg**



Week 3: Day 2

- 1) Share 21kg in the ratio 3:4

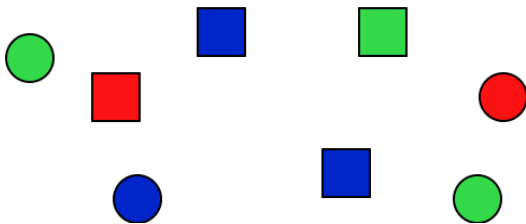
- 2) Simplify:

$$2c + 4d - c - 3d$$

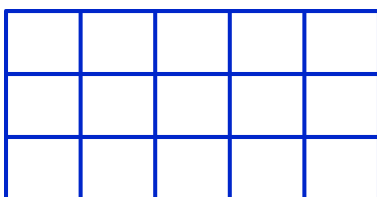
- 3) Fill in the missing number:

$$5 \times \frac{\boxed{}}{5} = 1$$

- 4) Write the ratio of squares to circles in its simplest form.



- 5) Shade $\frac{3}{5}$ of this rectangle.



Week 3: Day 2 Answers

- 1) Share 21kg in the ratio 3:4 **9kg and 12kg**

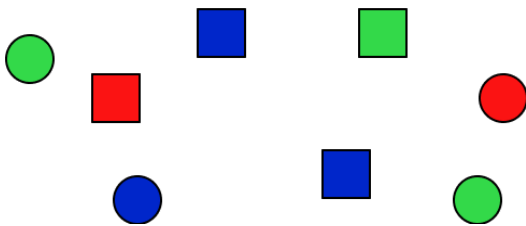
- 2) Simplify:

$$2c + 4d - c - 3d = c + d$$

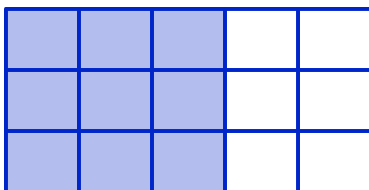
- 3) Fill in the missing number:

$$5 \times \frac{\boxed{1}}{5} = 1$$

- 4) Write the ratio of squares to circles in its simplest form. **1 : 1**



- 5) Shade $\frac{3}{5}$ of this rectangle. **9 boxes shaded, eg**



Week 3: Day 3

- 1) Share £36 in the ratio 3:1

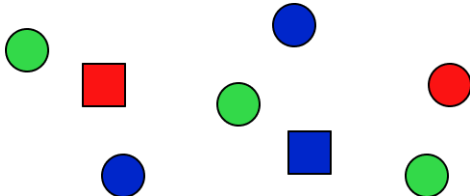
- 2) Simplify:

$$2x + 5 - 2 + x$$

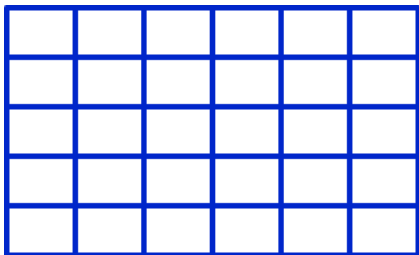
- 3) Fill in the missing number:

$$7 \times \frac{3}{7} = \boxed{}$$

- 4) Write the ratio of squares to circles in its simplest form.



- 5) Shade $\frac{3}{10}$ of this rectangle.



Week 3: Day 3 Answers

- 1) Share £36 in the ratio 3:1 **£27 and £9**

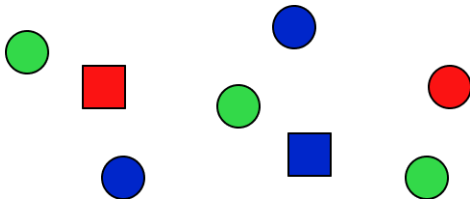
- 2) Simplify:

$$2x + 5 - 2 + x = 3x + 3$$

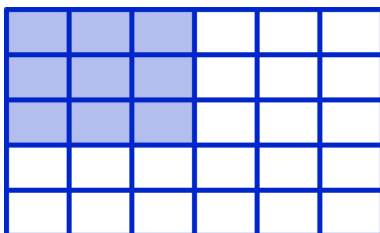
- 3) Fill in the missing number:

$$7 \times \frac{3}{7} = \boxed{3}$$

- 4) Write the ratio of squares to circles in its simplest form. **1 : 3**



- 5) Shade $\frac{3}{10}$ of this rectangle. **9 boxes shaded, eg**



Week 3: Day 4

- 1) Share 54cm in the ratio 1:2:3

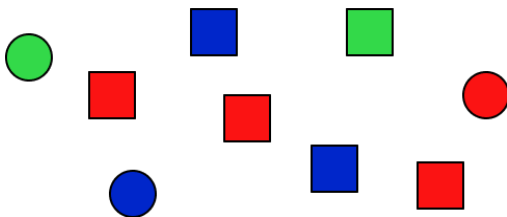
- 2) Simplify:

$$8ab - 4a + 5a - 2ab$$

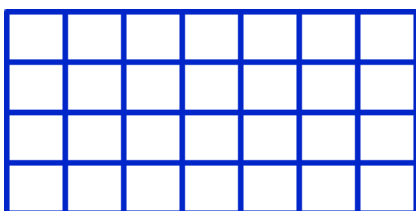
- 3) Fill in the missing number:

$$5 \times \frac{2}{\boxed{}} = 2$$

- 4) Write the ratio of squares to circles in its simplest form.



- 5) Shade $\frac{11}{14}$ of this rectangle.



Week 3: Day 4 Answers

- 1) Share 54cm in the ratio 1:2:3 **9cm, 18cm and 27cm**

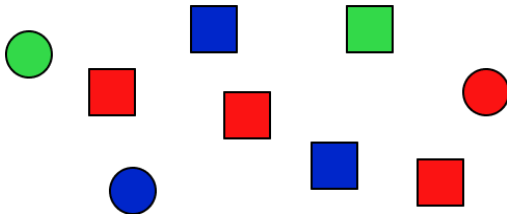
- 2) Simplify:

$$8ab - 4a + 5a - 2ab = \mathbf{6ab + a}$$

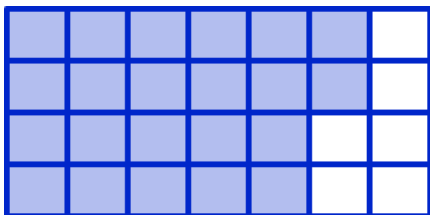
- 3) Fill in the missing number:

$$5 \times \frac{2}{\boxed{5}} = 2$$

- 4) Write the ratio of squares to circles in its simplest form. **2 : 1**



- 5) Shade $\frac{11}{14}$ of this rectangle. **22 boxes shaded, eg**



Week 3: Day 5

- 1) Share £110 in the ratio 2:3:5

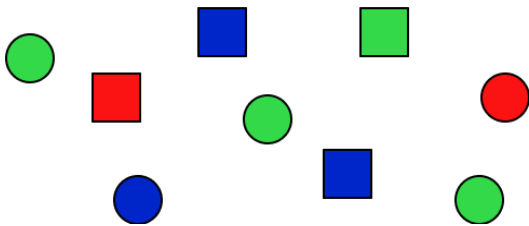
- 2) Simplify:

$$4n - 9n + 5n$$

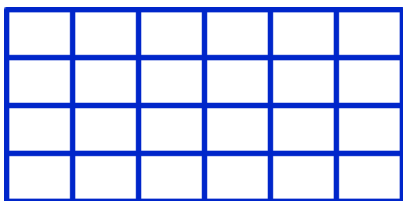
- 3) Fill in the missing number:

$$2 \times \frac{2}{\boxed{}} = 2$$

- 4) Write the ratio of green to blue to red.



- 5) Shade $\frac{5}{12}$ of this rectangle.



Week 3: Day 5 Answers

- 1) Share £110 in the ratio 2:3:5 **£22, £33 and £55**

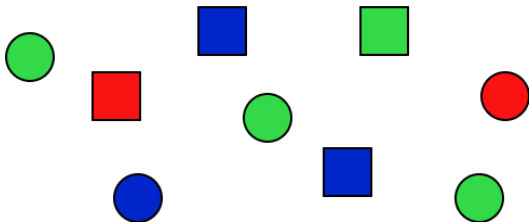
- 2) Simplify:

$$4n - 9n + 5n = 0$$

- 3) Fill in the missing number:

$$2 \times \frac{2}{\boxed{2}} = 2$$

- 4) Write the ratio of green to blue to red. **4 : 3 : 2**



- 5) Shade $\frac{5}{12}$ of this rectangle. **10 boxes shaded, eg**



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