

Week 10

This week in a nutshell:

A few examples for Q1 should then enable most students to work independently. A review of Q2 will be needed before students can get started. Differentiate the task by asking students who find algebra challenging to write down the common difference and the next few terms of the sequence instead. Q3 is a step towards expressing numbers as a product of their prime factors which will be covered in week 12. Try to encourage discussions around estimation strategies for Q4. Note that Q5 is designed to simply embed the concept at this stage rather than provide any problem solving practice.

Question 1: Rounding (decimal places)

Question 2: Finding the n^{th} term

Question 3: Composite numbers

Question 4: Estimating percentages (visually)

Question 5: Exterior angles

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: Rounding (decimal places)

- **Task:** Write ten different numbers that equal 8.47 when they are rounded to two decimal places.
Do the same for 3.40 and 6.00.

Question 2: Finding the n^{th} term

- **Task:** Write out the first six terms of the sequence with n^{th} term formula n^2 . Now write down the difference between each term. What do you notice? Do the same for $n^2 - 5$ and $2n^2$.

Question 3: Composite numbers

- A prime number has exactly two factors (1 & itself). A composite number has more than two factors.
Task: For the numbers 0 to 20 write if each number is prime, composite or neither.

Question 4: Estimating percentages (visually)

- What strategies do you use to help you estimate percentages visually? How close to the exact answer do you think an estimate needs to be in order to be marked as correct?

Question 5: Exterior angles

- Simon says "An exterior angle is a reflex angle on the outside of a shape". Explain why Simon is wrong. Write your own definition using mathematical terminology and include any key properties.

Week 10: Day 1

- 1) Round to one decimal place:

8.269

- 2) Find the n^{th} term rule:

3, 7, 11, 15, 19, ...

- 3) Work out the composite number given by

$$2^3 \times 3 =$$

- 4) Estimate the percentage of the rectangle that has been coloured purple.



- 5) Determine the size of the exterior angle of this equilateral triangle.



Week 10: Day 1 Answers

- 1) Round to one decimal place:

8.269

8.3

- 2) Find the n^{th} term rule:

3, 7, 11, 15, 19, ...

 $4n - 1$

- 3) Work out the composite number given by

$$2^3 \times 3 = 24$$

- 4) Estimate the percentage of the rectangle that has been coloured purple. ~65%



- 5) Determine the size of the exterior angle of this equilateral triangle.

120°



Week 10: Day 2

- 1) Round to one decimal place:

0.7527

- 2) Find the n^{th} term rule:

7, 10, 13, 16, 19, ...

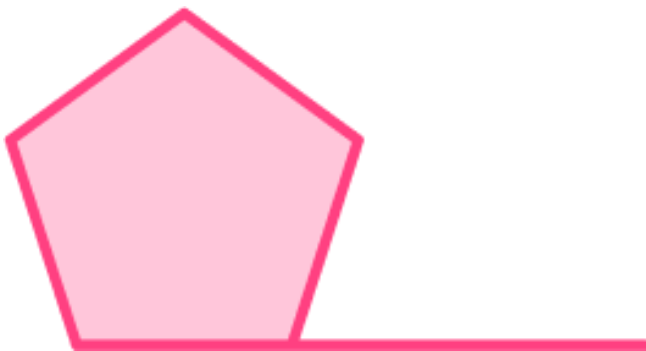
- 3) Work out the composite number given by

$$2^2 \times 3^2 =$$

- 4) Estimate the percentage of the rectangle that has been coloured orange.



- 5) Determine the size of the exterior angle of this regular pentagon.



Week 10: Day 2 Answers

- 1) Round to one decimal place:

0.7527 0.8

- 2) Find the n^{th} term rule:

7, 10, 13, 16, 19, ... $3n + 4$

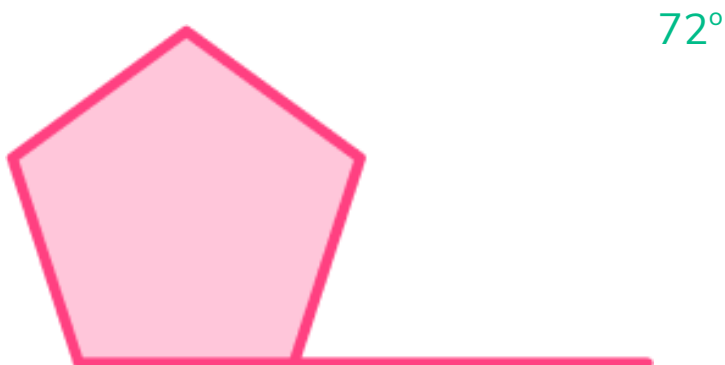
- 3) Work out the composite number given by

$$2^2 \times 3^2 = 36$$

- 4) Estimate the percentage of the rectangle that has been coloured orange.



- 5) Determine the size of the exterior angle of this regular pentagon.



Week 10: Day 3

- 1) Round to two decimal places:

6.8542

- 2) Find the n^{th} term rule:

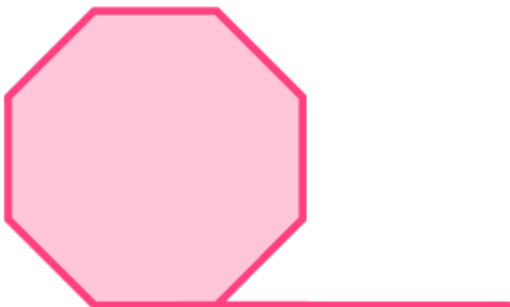
7, 5, 3, 1, -1 ...

- 3) Work out the composite number given by
 $2 \times 3 \times 11 =$
-

- 4) Estimate the percentage of the rectangle that has been coloured green.



- 5) Determine the size of the exterior angle of this regular octagon.



Week 10: Day 3 Answers

- 1) Round to two decimal places:

6.8542

6.85

- 2) Find the n^{th} term rule:

7, 5, 3, 1, -1 ...

 $9 - 2n$

- 3) Work out the composite number given by

$$2 \times 3 \times 11 = 66$$

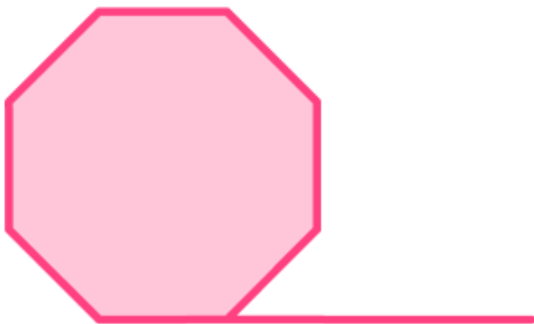
- 4) Estimate the percentage of the rectangle that has been coloured green.



~45%

- 5) Determine the size of the exterior angle of this regular octagon.

45°



Week 10: Day 4

- 1) Round to three decimal places:

0.089545

- 2) Find the n^{th} term rule:

-7, -2, 3, 8, 13 ...

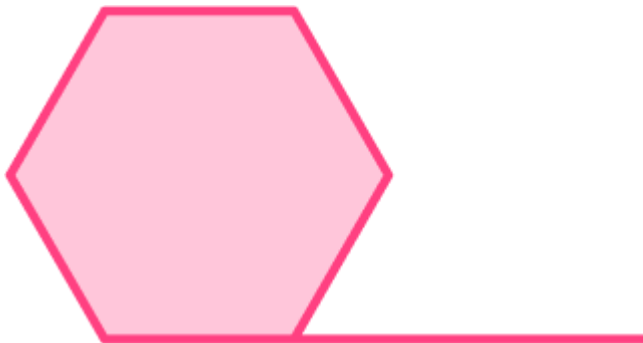
- 3) Work out the composite number given by

$$3 \times 7^2 =$$

- 4) Estimate the percentage of the rectangle that has been coloured red.



- 5) Complete the column addition:



Week 10: Day 4 Answers

- 1) Round to three decimal places:

0.089545 0.090

- 2) Find the n^{th} term rule:

-7, -2, 3, 8, 13 ... $5n - 12$

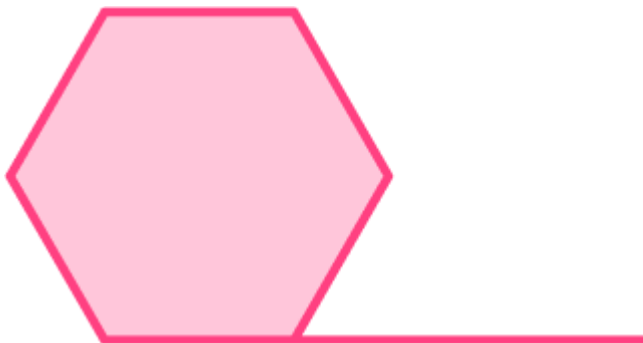
- 3) Work out the composite number given by

$$3 \times 7^2 = 147$$

- 4) Estimate the percentage of the rectangle that has been coloured red.



- 5) Determine the size of the exterior angle of this regular hexagon. 60°



Week 10: Day 5

- 1) Round to two decimal places:

14.9957

- 2) Find the n^{th} term rule:

2.5, 5.5, 8.5, 11.5, ...

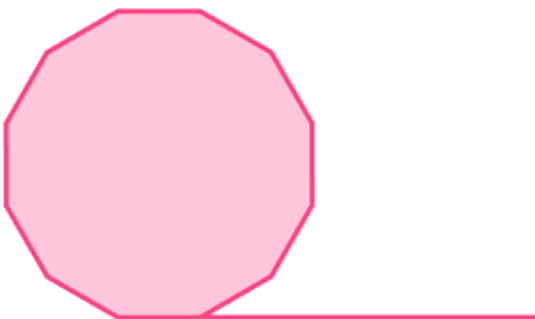
- 3) Work out the composite number given by

$$2 \times 3 \times 5^2 =$$

- 4) Estimate the percentage of the rectangle that has been coloured pink.



- 5) Determine the size of the exterior angle of this regular dodecagon.



Week 10: Day 5 Answers

- 1) Round to two decimal places:

14.9957 15.00

- 2) Find the n^{th} term rule:

2.5, 5.5, 8.5, 11.5, ... $3n - 0.5$

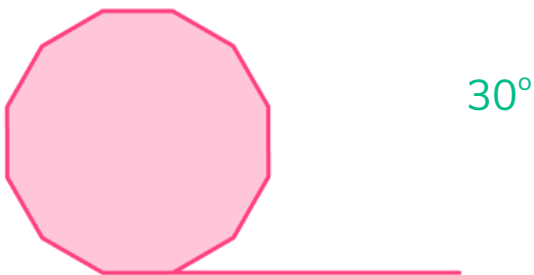
- 3) Work out the composite number given by

$$2 \times 3 \times 5^2 = 150$$

- 4) Estimate the percentage of the rectangle that has been coloured pink.



- 5) Determine the size of the exterior angle of this regular dodecagon.



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