

## Week 10

### This week in a nutshell:

Students may find question 3 more challenging with respect to the notation involved in writing vectors; talking through how this works and clearing up problems early on is a good idea. Question 4 may require the use of mirrors or tracing paper to help students to visualise their answers. The different ways to remember the difference between perimeter and area should be explored as part of question 5.

**Question 1:** Product of primes

**Question 2:** Recognising multiples

**Question 3:** Writing a translation as a vector

**Question 4:** Rotation about a point

**Question 5:** Area and perimeter

### This week's ideas for class discussion include:

Question 1: **Product of primes**

- How many primes are there?

Question 2: **Recognising multiples**

- Are there any divisibility rules you could use to check multiples?

Question 3: **Writing a translation as a vector**

- Why is vector notation useful?

Question 4: **Rotation about a point**

- Describe your method for performing a rotation.

Question 5: **Area and perimeter**

- How do you remember the difference between area and perimeter?

## Week 10: Day 1

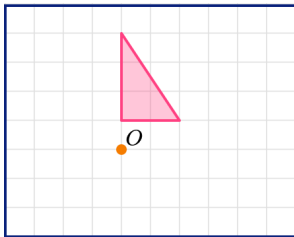
1) Express 42 as a product of primes.

2) Circle the multiple(s) of 4.

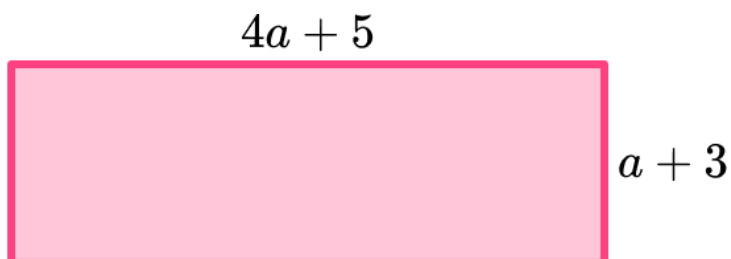
14, 24, 34, 44, 52

3) Write the translation, “right 2, up 3” as a column vector.

4) Rotate the triangle  $90^\circ$  clockwise about point O



5) What is the perimeter of this rectangle?



## Week 10: Day 1 Answers

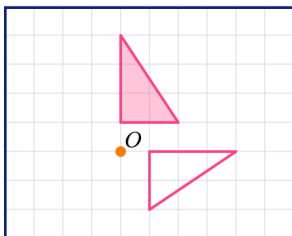
1) Express 42 as a product of primes.  $2 \times 3 \times 7$

2) Circle the multiple(s) of 4.

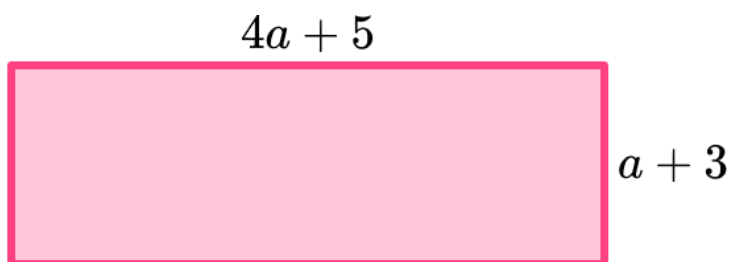
14, 24, 34, 44, 52

3) Write the translation, "right 2, up 3" as a column vector.  $\begin{bmatrix} 2 \\ 3 \end{bmatrix}$

4) Rotate the triangle 90° clockwise about point O



5) What is the perimeter of this rectangle?  $10a + 16$



## Week 10: Day 2

1) Express 70 as a product of primes.

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2) Circle the multiple(s) of 3.

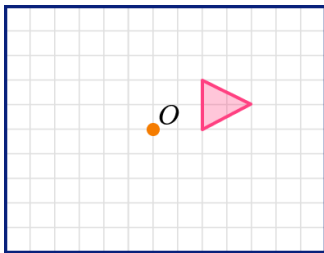
43, 54, 73, 84, 105

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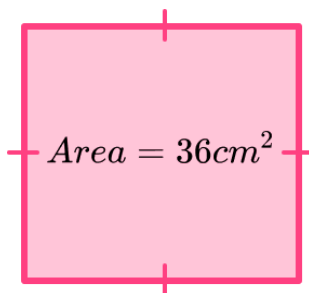
3) Write the translation, “left 1, up 4” as a column vector.

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4) Rotate the triangle  $180^\circ$  about point O



5) The area of this square is  $36\text{cm}^2$ . What is the perimeter of the square?



## Week 10: Day 2 Answers

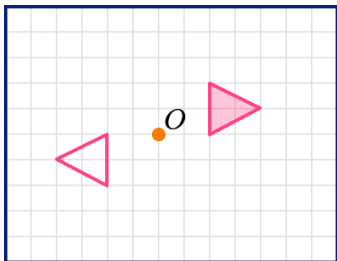
- 1) Express 70 as a product of primes.  $2 \times 5 \times 7$

- 2) Circle the multiple(s) of 3.

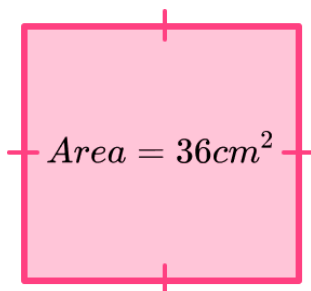
43, 54, 73, 84, 105

- 3) Write the translation, "left 1, up 4" as a column vector.  $\begin{pmatrix} -1 \\ 4 \end{pmatrix}$

- 4) Rotate the triangle 180° about point O



- 5) The area of this square is  $36\text{cm}^2$ . What is the perimeter of the square?  
 $24\text{cm}$



## Week 10: Day 3

1) Express 54 as a product of primes using index notation.

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2) Circle the multiple(s) of 6.

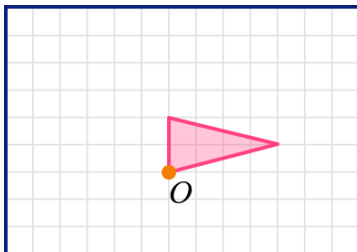
16, 44, 54, 84, 106

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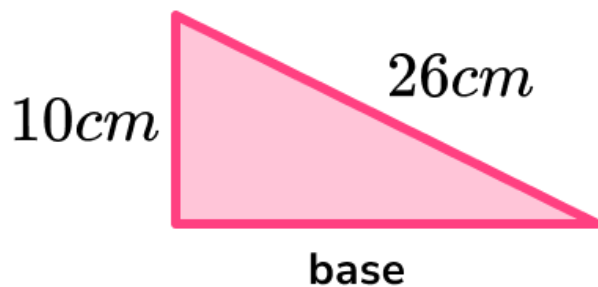
3) Write the translation, “down 1” as a column vector.

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4) Rotate the triangle  $90^\circ$  anti-clockwise about point O



5) The perimeter of this triangle is 60cm. How long is the base?



## Week 10: Day 3 Answers

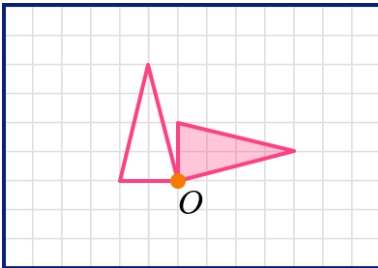
- 1) Express 54 as a product of primes using index notation.  $2 \times 3^3$

- 2) Circle the multiple(s) of 6.

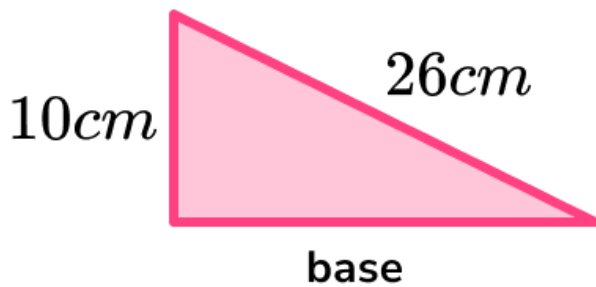
16, 44, 54, 84, 106

- 3) Write the translation, “down 1” as a column vector.  $\begin{pmatrix} 0 \\ -1 \end{pmatrix}$

- 4) Rotate the triangle  $90^\circ$  anti-clockwise about point O



- 5) The perimeter of this triangle is 60cm. How long is the base? 24cm



## Week 10: Day 4

1) Express 72 as a product of primes using index notation.

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2) Circle the multiple(s) of 8.

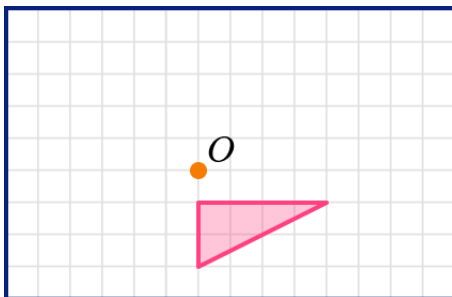
34, 44, 74, 94, 104

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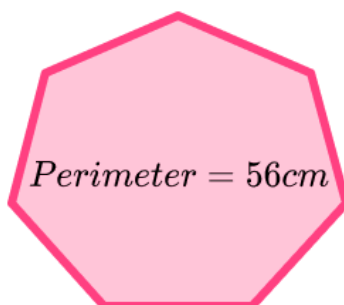
3) Write the translation, “right 5” as a column vector.

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4) Rotate the triangle  $180^\circ$  about point O



5) This regular heptagon has a perimeter of 56cm. What is the length of one side?



## Week 10: Day 4 Answers

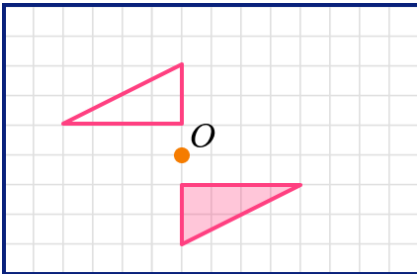
- 1) Express 72 as a product of primes using index notation.  $2^3 \times 3^2$

- 2) Circle the multiple(s) of 8.

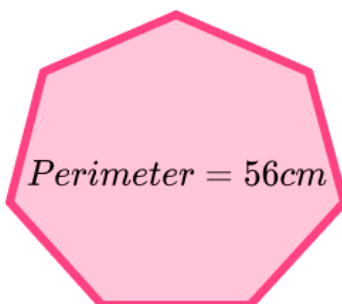
34, 44, 74, 94, 104

- 3) Write the translation, "right 5" as a column vector.  $\begin{pmatrix} 5 \\ 0 \end{pmatrix}$

- 4) Rotate the triangle  $180^\circ$  about point O



- 5) This regular heptagon has a perimeter of 56cm. What is the length of one side? 8cm



## Week 10: Day 5

1) Express 210 as a product of primes.

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2) Circle the multiple(s) of 7.

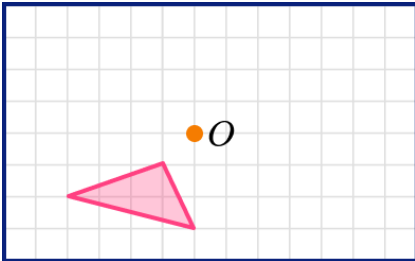
17, 28, 64, 84, 111

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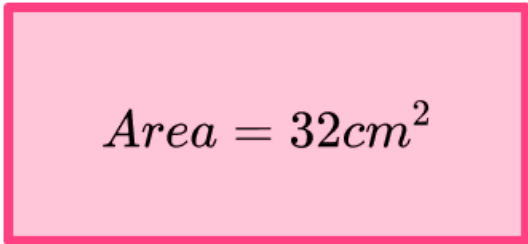
3) Write the translation, “left 2, down 1” as a column vector.

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4) Rotate the triangle  $180^\circ$  about point O



5) The side lengths of this rectangle are integers? List the possible dimensions of the rectangle.


$$\text{Area} = 32\text{cm}^2$$

## Week 10: Day 5 Answers

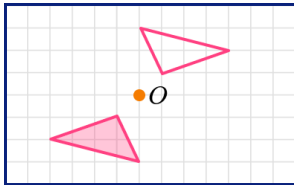
1) Express 210 as a product of primes.  $2 \times 3 \times 5 \times 7$

2) Circle the multiple(s) of 7.

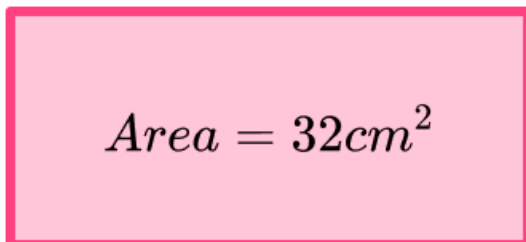
17, 28, 64, 84, 111

3) Write the translation, "left 2, down 1" as a column vector.  $\begin{pmatrix} -2 \\ -1 \end{pmatrix}$

4) Rotate the triangle  $180^\circ$  about point O



5) The side lengths of this rectangle are integers? List the possible dimensions of the rectangle.



1cm x 32cm

2cm x 16cm

4cm x 8cm

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