

## Week 12

### This week in a nutshell:

Again with the end of the year in sight we revisit some useful topics. Questions 4 and 5, as with last week, are from recently seen topics and could be used as interesting discussion points. This could be in terms of the mathematics involved, but also in terms of applications to video games and modern animation techniques.

**Question 1:** Mental methods

**Question 2:** Factorising

**Question 3:** Powers and roots

**Question 4:** Scale factors of enlargement

**Question 5:** Describing translations

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

Question 1: **Mental methods**

- How would you describe your thought process to others when doing mental calculations?

Question 2: **Factorising**

- What skills do you rely on when factorising an algebraic expression?

Question 3: **Powers and roots**

- Why is comparing numbers written in index notation different to comparing integers or decimals?

Question 4: **Scale factors of enlargement**

- What skills are you using when working with scale factors?

Question 5: **Describing translations**

- What do you need to include when describing a translation?

## Week 12: Day 1

1) Fill in the missing numbers:

a)  $71 + \underline{\quad} = 100$

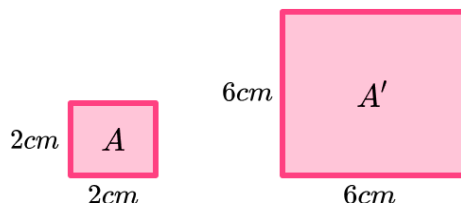
b)  $\underline{\quad} - 33 = 167$

2) Factorise  $5x - 25$

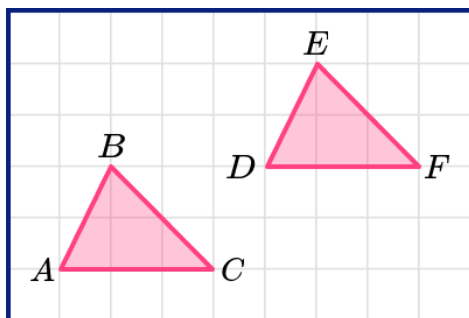
3) Use  $<$ ,  $>$  or  $=$  to make the statement true:

$$3^2 \quad \square \quad 2^3$$

4) What is the scale factor of enlargement of square A to A'.



5) Describe the translation that takes ABC to DEF.



## Week 12: Day 1 Answers

1) Fill in the missing numbers:

a)  $71 + 29 = 100$

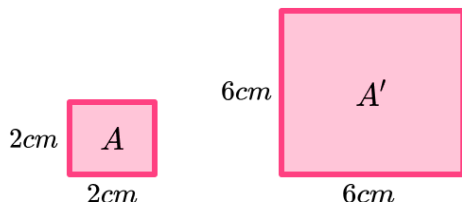
b)  $200 - 33 = 167$

2) Factorise  $5x - 25$   $5(x - 5)$

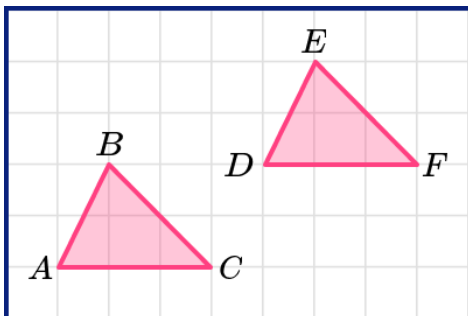
3) Use  $<$ ,  $>$  or  $=$  to make the statement true:

$$3^2 \boxed{>} 2^3$$

4) What is the scale factor of enlargement of square A to A'. 3



5) Describe the translation that takes ABC to DEF. 4 to the right, 2 up



## Week 12: Day 2

1) Fill in the missing numbers:

a)  $93 + \underline{\quad} = 150$

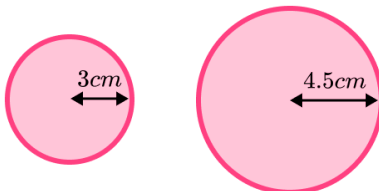
b)  $\underline{\quad} - 131 = 205$

2) Fully factorise  $9x - 27$

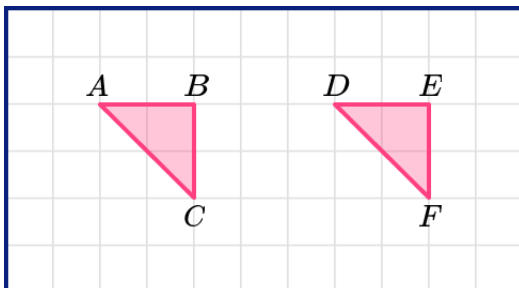
3) Use  $<$ ,  $>$  or  $=$  to make the statement true:

$$4^2 \quad \square \quad 2^4$$

4) Given the radii, what is the scale factor of enlargement from the smaller circle to larger circle?



5) Describe the translation that takes ABC to DEF.



## Week 12: Day 2 Answers

1) Fill in the missing numbers:

a)  $93 + 57 = 150$

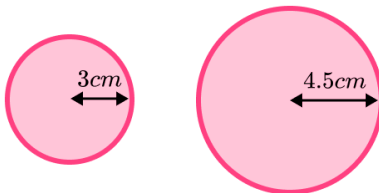
b)  $336 - 131 = 205$

2) Fully factorise  $9x - 27$   $9(x - 3)$

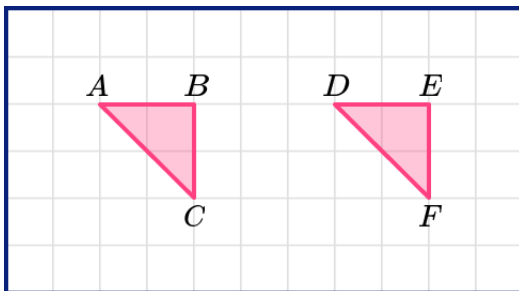
3) Use  $<$ ,  $>$  or  $=$  to make the statement true:

$$4^2 \quad \boxed{=} \quad 2^4$$

4) Given the radii, what is the scale factor of enlargement from the smaller circle to larger circle?  $1.5$



5) Describe the translation that takes ABC to DEF.  $5$  to the right



## Week 12: Day 3

1) Fill in the missing numbers:

a)  $\underline{\quad} + 58 = 182$

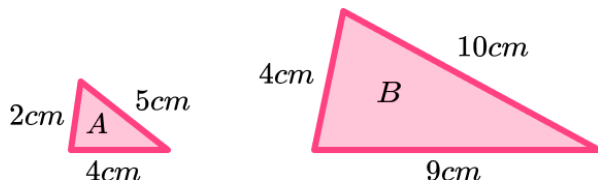
b)  $87 - \underline{\quad} = 88$

2) Fully factorise  $10x + 25y$

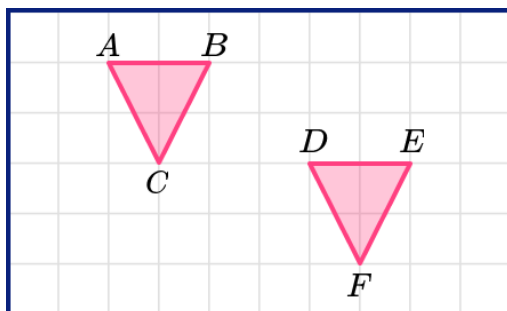
3) Use  $<$ ,  $>$  or  $=$  to make the statement true:

$$3^4 \square 4^3$$

4) Give a reason why triangle B is not an enlargement of triangle A



5) Describe the translation that takes ABC to DEF.



## Week 12: Day 3 Answers

1) Fill in the missing numbers:

a)  $124 + 58 = 182$

b)  $87 - 1 = 88$

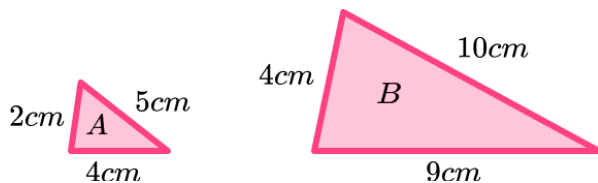
2) Fully factorise  $10x + 25y$   $5(2x + 5y)$

3) Use  $<$ ,  $>$  or  $=$  to make the statement true:

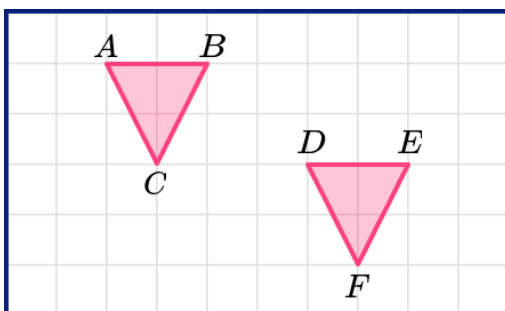
$$3^4 \quad \boxed{>} \quad 4^3$$

4) Give a reason why triangle B is not an enlargement of triangle A

The same multiplier has not been used for all three sides



5) Describe the translation that takes ABC to DEF. 4 right, 2 down



## Week 12: Day 4

1) Fill in the missing numbers:

a)  $89 + \underline{\quad} = 108$

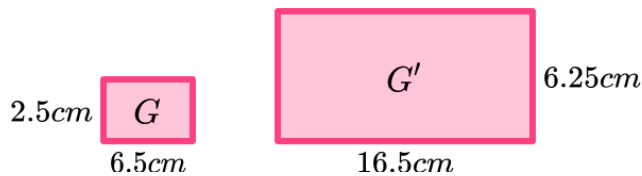
b)  $\underline{\quad} - 65 = 239$

2) Fully factorise  $6x + 24$

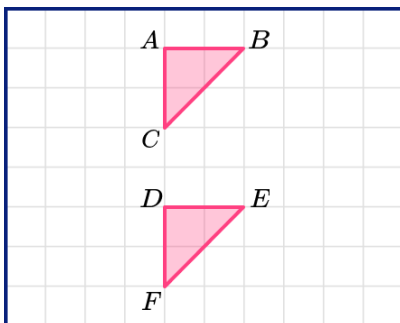
3) Use  $<$ ,  $>$  or  $=$  to make the statement true:

$$\sqrt{400} \quad \square \quad 3^3$$

4) Determine whether rectangle  $G'$  is an enlargement of rectangle  $G$ .



5) Describe the translation that takes  $ABC$  to  $DEF$ .



## Week 12: Day 4 Answers

1) Fill in the missing numbers:

a)  $89 + 19 = 108$

b)  $304 - 65 = 239$

2) Fully factorise  $6x + 24$      $6(x + 4)$

3) Use  $<$ ,  $>$  or  $=$  to make the statement true:

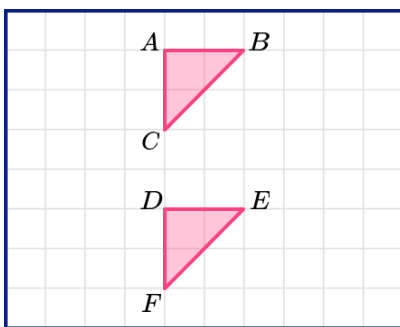
$$\sqrt{400} \quad \boxed{<} \quad 3^3$$

4) Determine whether rectangle  $G'$  is an enlargement of rectangle  $G$ .

**No, inconsistent multipliers for length and width**



5) Describe the translation that takes  $ABC$  to  $DEF$ .    **down 4**



## Week 12: Day 5

1) Fill in the missing numbers:

a)  $34 + \underline{\quad} = 103$

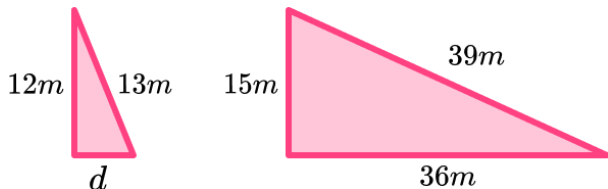
b)  $\underline{\quad} - 87 = 75$

2) Factorise  $4x - 10$

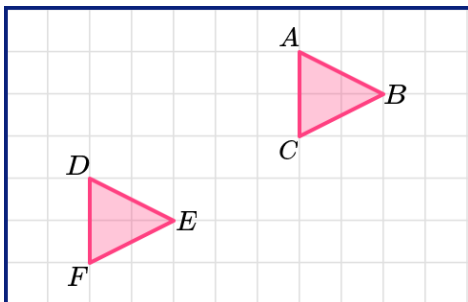
3) Use  $<$ ,  $>$  or  $=$  to make the statement true:

$$4^2 \quad \square \quad \sqrt{256}$$

4) The diagram represents an enlargement. What is the length of  $d$ ?



5) Describe the translation that takes ABC to DEF.



## Week 12: Day 5 Answers

1) Fill in the missing numbers:

a)  $34 + 69 = 103$

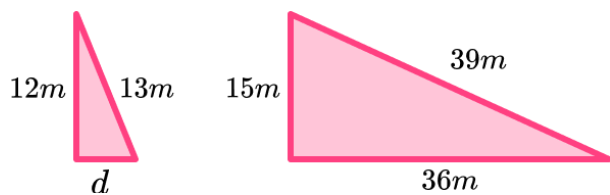
b)  $162 - 87 = 75$

2) Factorise  $4x - 10$      $2(2x - 5)$

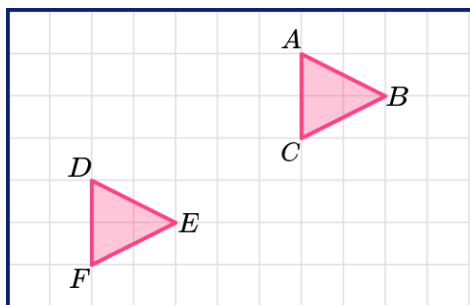
3) Use  $<$ ,  $>$  or  $=$  to make the statement true:

$$4^2 \quad \boxed{=} \quad \sqrt{256}$$

4) The diagram represents an enlargement. What is the length of  $d$ ?     $5m$



5) Describe the translation that takes ABC to DEF.    **left 5, down 3**



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