

## Week 6

### This week in a nutshell:

If any students need additional challenge, other than dealing with time constraints, detailing their reasoning for question 1, using a second method for question 2 or stating the rules used for question 4, are all excellent subsidiary tasks. These also make great talking points after the work has been checked.

**Question 1:** Solving equations

**Question 2:** Increasing/decreasing by a given percentage

**Question 3:** Metric unit conversion

**Question 4:** Angles and parallel lines

**Question 5:** Translations

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: **Solving equations**

- Describe the process of solving an equation in your own words?
- How would you depict the solving of equations using images?

Question 2: **Increasing/decreasing by a given percentage**

- How accurate would it be to say that a percentage increase is actually a percentage decrease using a negative percentage?

Question 3: **Metric unit conversion**

- Name as many metric units as you can.
- How would you convert between them?

Question 4: **Angles and parallel lines**

- What applications do parallel lines have?
- Why are they used in this way?

Question 5: **Translations**

- How is a translation in geometry the same as a translation in language?

## Week 6: Day 1

- 1) Solve for  $x$ :

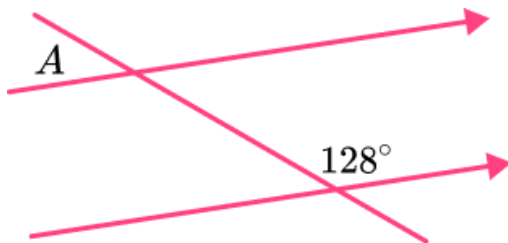
$$7x + 11 = 46$$

- 2) Complete the unit conversion:

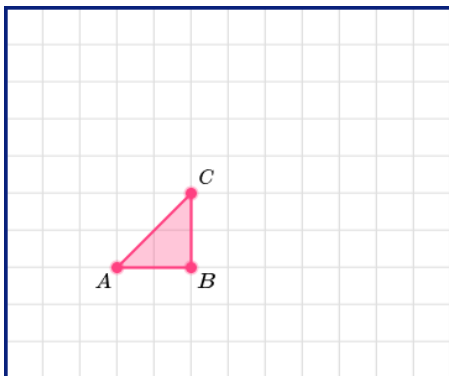
$$179\text{cm} = \underline{\hspace{2cm}} \text{m}$$

- 3) Increase 65 by 10%.

- 4) Determine the size of angle  $A$ :



- 5) Draw the image when triangle  $ABC$  is translated by the column vector  $\begin{pmatrix} 4 \\ 2 \end{pmatrix}$



## Week 6: Day 1 Answers

- 1) Solve for  $x$ :

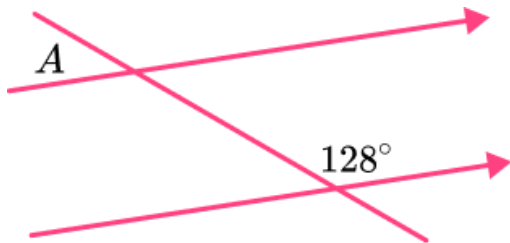
$$7x + 11 = 46 \quad x = 5$$

- 2) Complete the unit conversion:

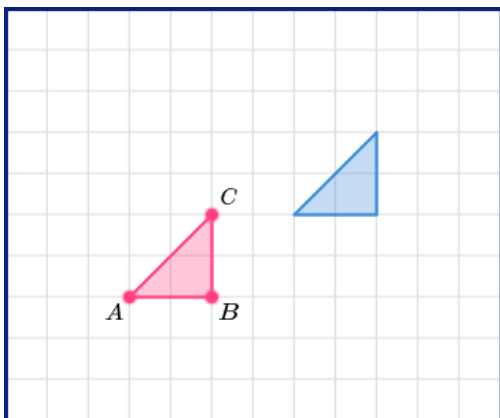
$$179\text{cm} = 1.79\text{ m}$$

- 3) Increase 65 by 10%. 71.5

- 4) Determine the size of angle  $A$ :  $52^\circ$



- 5) Draw the image when triangle  $ABC$  is translated by the column vector  $\begin{pmatrix} 4 \\ 2 \end{pmatrix}$



## Week 6: Day 2

- 1) **Solve for  $x$ :**

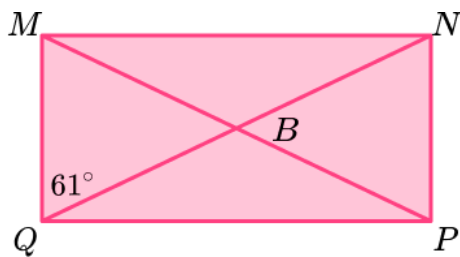
$$17 - 2x = 28$$

- 2) **Complete the unit conversion:**

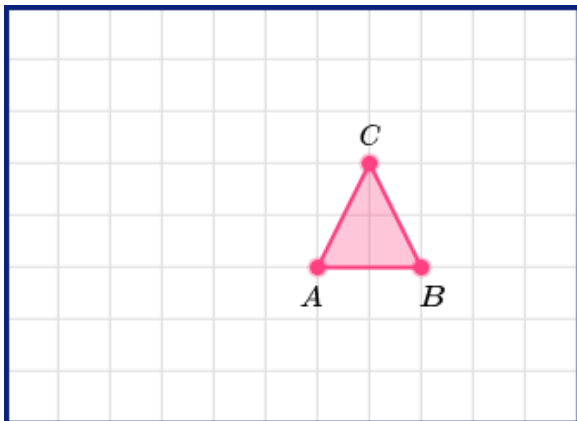
$$0.064 \text{ kg} = \text{ \_\_\_\_\_\_ } \text{ g}$$

- 3) **Increase 72 by 15%.**

- 4)  **$MNPQ$  is a rectangle. Determine the size of angle  $B$ :**



- 5) **Draw the image when triangle  $ABC$  is translated by the column vector  $\begin{pmatrix} -3 \\ 0 \end{pmatrix}$**



## Week 6: Day 2 Answers

- 1) Solve for  $x$ :

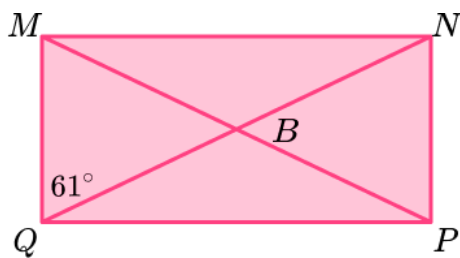
$$17 - 2x = 28 \quad x = -5.5$$

- 2) Complete the unit conversion:

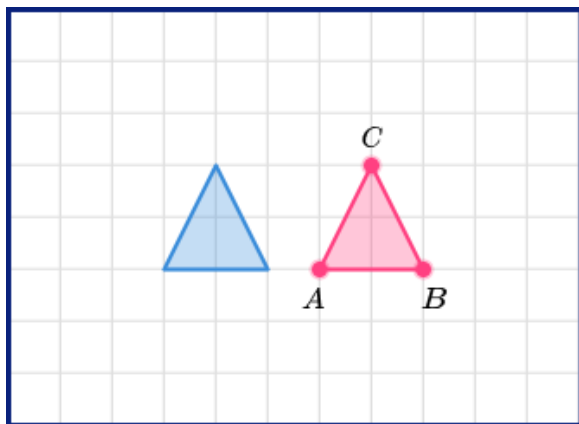
$$0.064 \text{ kg} = 64 \text{ g}$$

- 3) Increase 72 by 15%.  $82.8$

- 4)  $MNPQ$  is a rectangle. Determine the size of angle  $B$ :  $58^\circ$



- 5) Draw the image when triangle  $ABC$  is translated by the column vector  $\begin{pmatrix} -3 \\ 0 \end{pmatrix}$



## Week 6: Day 3

1) Solve for  $x$ :

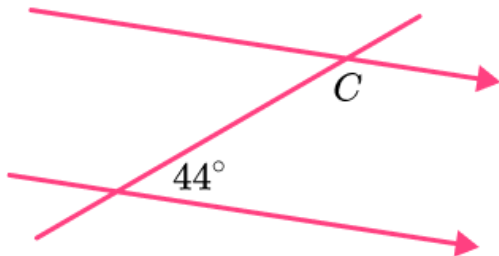
$$3(3x + 2) = 51$$

2) Complete the unit conversion:

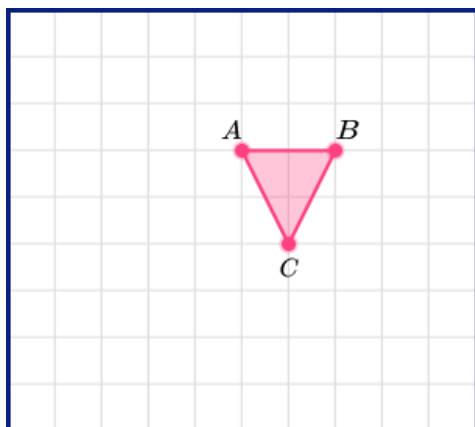
$$125.5 \text{ mg} = \underline{\hspace{2cm}} \text{ g}$$

3) Decrease 82 by 35%.

4) Determine the size of angle  $C$ :



5) Draw the image when triangle  $ABC$  is translated by the column vector  $\begin{pmatrix} -2 \\ -1 \end{pmatrix}$



## Week 6: Day 3 Answers

1) Solve for  $x$ :

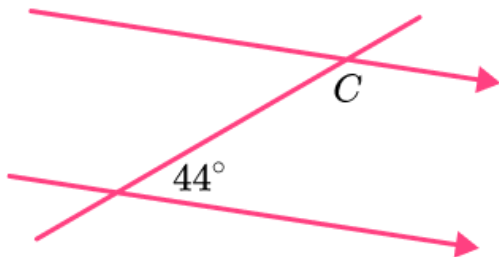
$$3(3x + 2) = 51 \quad x = 5$$

2) Complete the unit conversion:

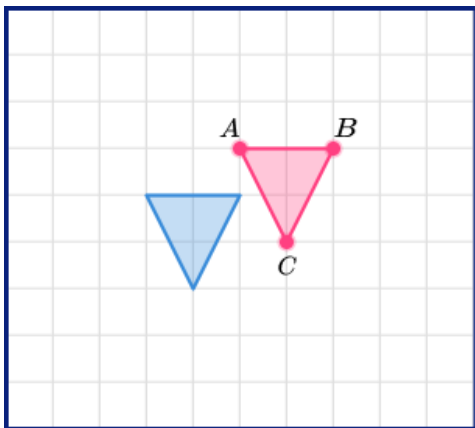
$$125.5 \text{ mg} = 0.1255 \text{ g}$$

3) Decrease 82 by 35%. 53.3

4) Determine the size of angle  $C$ :  $136^\circ$



5) Draw the image when triangle  $ABC$  is translated by the column vector  $\begin{pmatrix} -2 \\ -1 \end{pmatrix}$



## Week 6: Day 4

- 1) **Solve for  $x$ :**

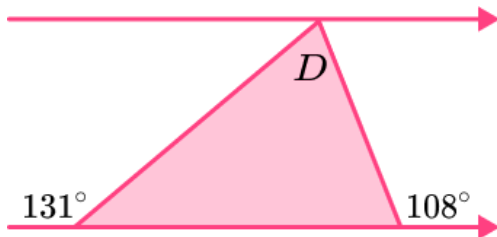
$$5(9 - 2x) + 1 = 46$$

- 2) **Complete the unit conversion:**

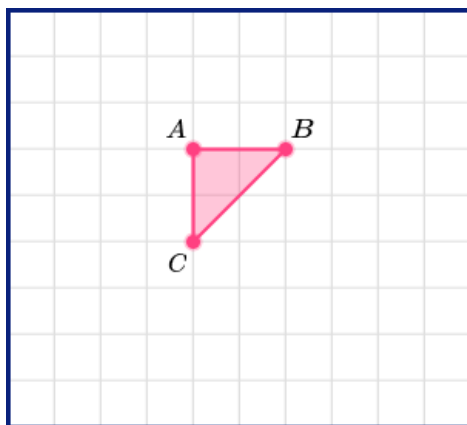
$$0.75 \text{ l} = \text{ \_\_\_\_\_\_ ml}$$

- 3) **Increase 1200 by 3%.**

- 4) **Determine the size of angle  $D$ :**



- 5) **Draw the image when triangle  $ABC$  is translated by the column vector  $\begin{pmatrix} 0 \\ -1 \end{pmatrix}$**





## Week 6: Day 4 Answers

- 1) Solve for  $x$ :

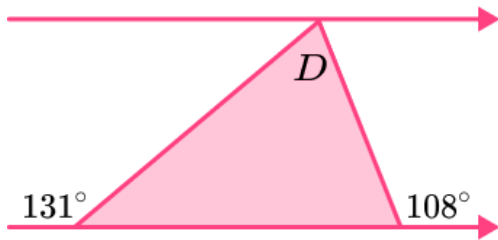
$$5(9 - 2x) + 1 = 46 \quad x = 0$$

- 2) Complete the unit conversion:

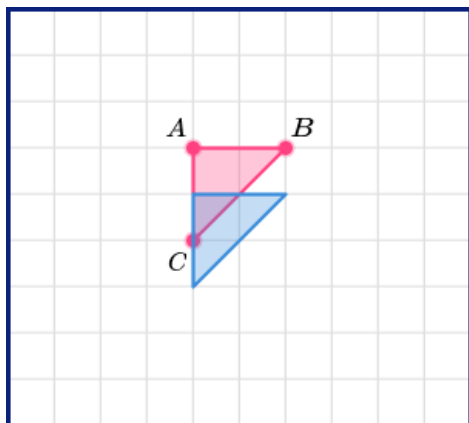
$$0.75 \text{ l} = 750 \text{ ml}$$

- 3) Increase 1200 by 3%. 1236

- 4) Determine the size of angle  $D$ :  $59^\circ$



- 5) Draw the image when triangle  $ABC$  is translated by the column vector  $\begin{pmatrix} 0 \\ -1 \end{pmatrix}$



## Week 6: Day 5

- 1) Solve for  $x$ :

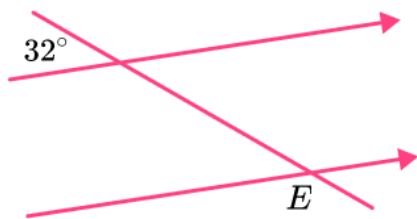
$$2x + 13 = 25 - 4x$$

- 2) Complete the unit conversion:

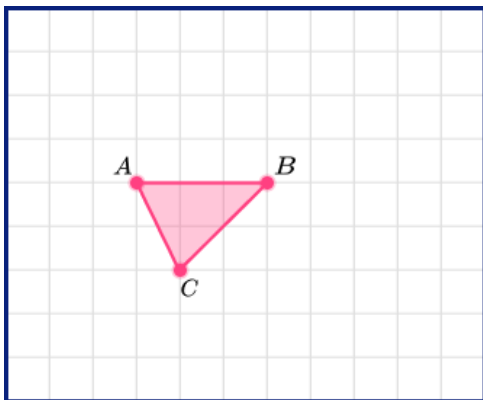
$$3075 \text{ mm} = \text{ \_\_\_\_\_\_ } \text{ m}$$

- 3) Decrease 750 by 7%.

- 4) Determine the size of angle  $E$ :



- 5) Draw the image when triangle  $ABC$  is translated by the column vector  $\begin{pmatrix} 2 \\ 1 \end{pmatrix}$



## Week 6: Day 5 Answers

- 1) Solve for  $x$ :

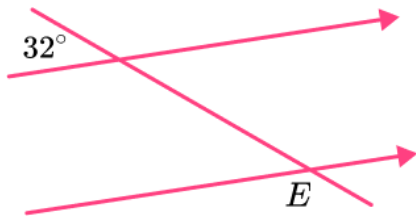
$$2x + 13 = 25 - 4x \quad x = 2$$

- 2) Complete the unit conversion:

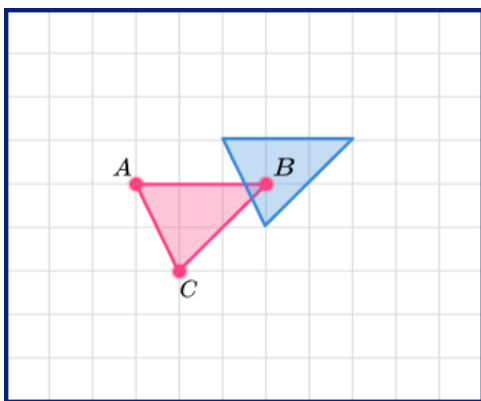
$$3075 \text{ mm} = 3.075 \text{ m}$$

- 3) Decrease 750 by 7%. 697.5

- 4) Determine the size of angle  $E$ :  $148^\circ$



- 5) Draw the image when triangle  $ABC$  is translated by the column vector  $\begin{pmatrix} 2 \\ 1 \end{pmatrix}$



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