

Week 11

This week in a nutshell:

The topics this week involve many skills that generally feature early in most GCSE schemes of work. Along with the usual tasks, marking, and discussing, it may be worth having a pitch of ideas to see how the skills used this week could be further deployed in maths and other subjects.

Question 1: Highest common factor

Question 2: Expanding and simplifying

Question 3: Writing numbers in standard form

Question 4: Trigonometry (finding angles)

Question 5: Using currency conversions

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: **Highest common factor**

- In what ways do we use the highest common factor?

Question 2: **Expanding and simplifying**

- Why is simplifying important after expanding brackets?
- Does simplifying "remove" any information?

Question 3: **Writing numbers in standard form**

- In which other subjects do we regularly see standard form?
- Why might this be?

Question 4: **Trigonometry (finding angles)**

- Would this be possible without calculators?
- Why do you think this?

Question 5: **Using currency conversions**

- Some currencies have decimal parts, and some do not, why do you think this is?
- Does either system have an advantage?

Week 11: Day 1

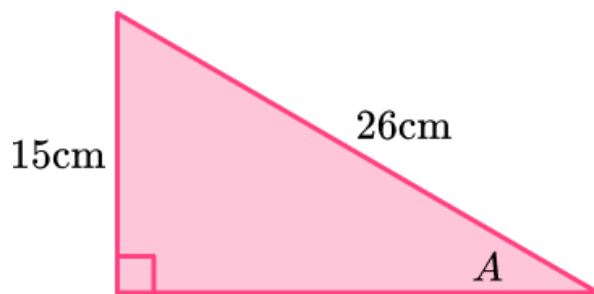
1) Find the highest common factor (HCF) of 12 and 20.

2) Expand and simplify:

$$2(x + 2) + 3(x - 1)$$

3) Write 5600 in standard form.

4) Find the size of angle A , giving your answer to one decimal place.



5) You have £200 to take on holiday to America. Using the exchange rate shown, how many dollars is your money worth?



Week 11: Day 1 Answers

- 1) Find the highest common factor (HCF) of 12 and 20. 4

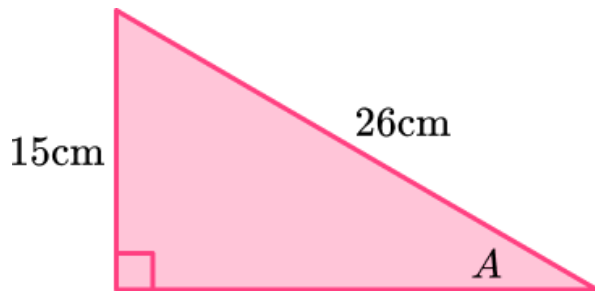
- 2) Expand and simplify:

$$\begin{aligned}2(x + 2) + 3(x - 1) \\&= 2x + 4 + 3x - 3 \\&= 5x + 1\end{aligned}$$

- 3) Write 5600 in standard form. 5.6×10^3

- 4) Find the size of angle A, giving your answer to one decimal place.

35.2°



- 5) You have £200 to take on holiday to America. Using the exchange rate shown, how many dollars is your money worth? \$250



Week 11: Day 2

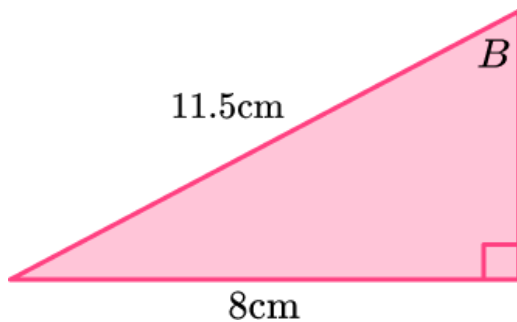
1) Find the highest common factor (HCF) of 32 and 46.

2) Expand and simplify:

$$3(x - 2) - 2(x - 1)$$

3) Write 0.04 in standard form.

4) Find the size of angle B , giving your answer to one decimal place.



5) You have £150 to take on holiday to Japan. Using the exchange rate shown, how many Yen is your money worth?



Week 11: Day 2 Answers

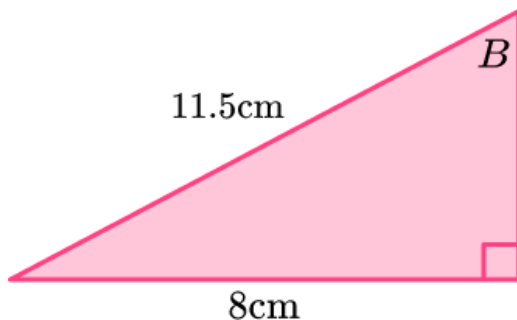
- 1) Find the highest common factor (HCF) of 32 and 46. 2

- 2) Expand and simplify:

$$\begin{aligned} 3(x - 2) - 2(x - 1) \\ = 3x - 6 - 2x + 2 \\ = x - 4 \end{aligned}$$

- 3) Write 0.04 in standard form. 4×10^{-2}

- 4) Find the size of angle B , giving your answer to one decimal place. 44.1°



- 5) You have £150 to take on holiday to Japan. Using the exchange rate shown, how many Yen is your money worth? ¥19500



Week 11: Day 3

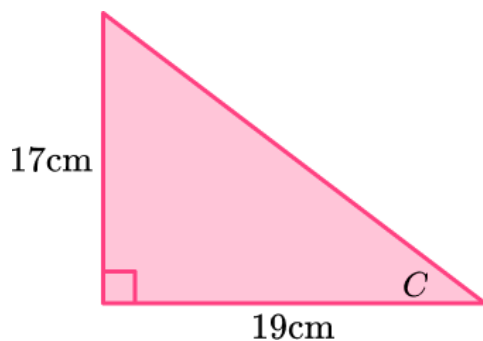
1) Find the highest common factor (HCF) of 57 and 81.

2) Expand and simplify:

$$5(3 - x) + 3(2x + 1)$$

3) Write 8250000 in standard form.

4) Find the size of angle C , giving your answer to one decimal place.



5) A pair of trainers cost €86.25. At the exchange rate shown, how much is this in British pounds?



Week 11: Day 3 Answers

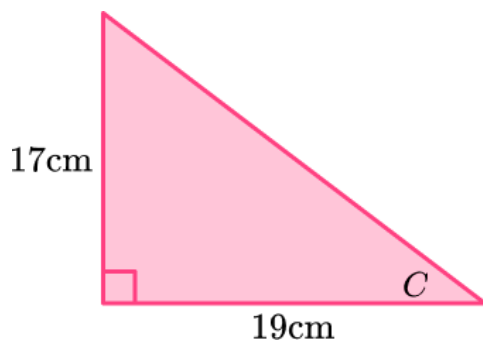
1) Find the highest common factor (HCF) of 57 and 81. 3

2) Expand and simplify:

$$\begin{aligned} &5(3 - x) + 3(2x + 1) \\ &= 15 - 5x + 6x + 3 \\ &= x + 18 \end{aligned}$$

3) Write 8250000 in standard form. 8.25×10^6

4) Find the size of angle C , giving your answer to one decimal place. 41.8°



5) A pair of trainers cost €86.25. At the exchange rate shown, how much is this in British pounds? £75



Week 11: Day 4

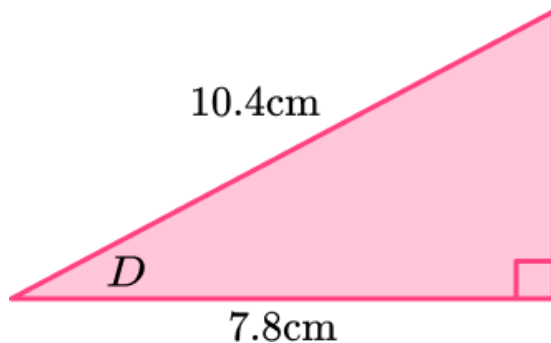
- 1) Find the highest common factor (HCF) of 24, 32 and 42.

- 2) Expand and simplify:

$$x(x - 3) + 3(x - 4)$$

- 3) Write 42 in standard form.

- 4) Find the size of angle D , giving your answer to one decimal place.



- 5) A hoodie costs \$69. At the exchange rate shown, how much is this in British pounds?



Week 11: Day 4 Answers

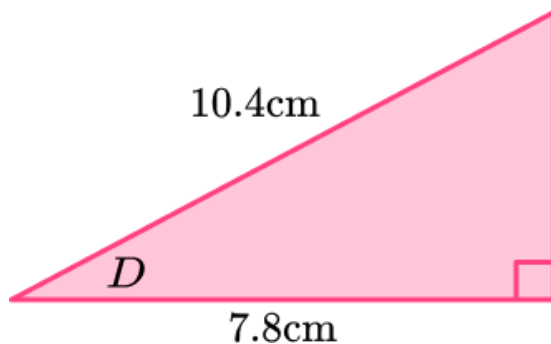
- 1) Find the highest common factor (HCF) of 24, 32 and 42. 2

- 2) Expand and simplify:

$$\begin{aligned}x(x - 3) + 3(x - 4) \\&= x^2 - 3x + 3x - 12 \\&= x^2 - 12\end{aligned}$$

- 3) Write 42 in standard form. 4.2×10^1

- 4) Find the size of angle D , giving your answer to one decimal place. 41.4°



- 5) A hoodie costs \$69. At the exchange rate shown, how much is this in British pounds? £57.50



Week 11: Day 5

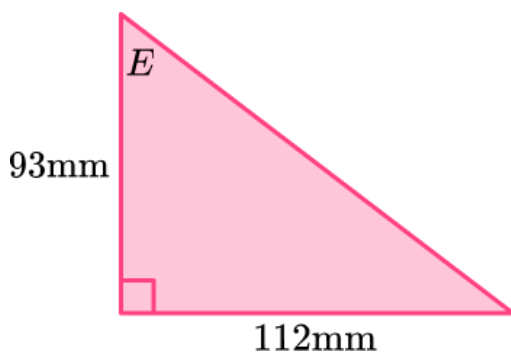
1) Find the highest common factor (HCF) of 42, 70 and 91.

2) Expand and simplify:

$$2(2x + 1) - 2x(3 - x)$$

3) Write 0.0013 in standard form.

4) Find the size of angle E , giving your answer to one decimal place.



5) A camera costs £250 in the UK. The same camera costs €322 in Germany. How much cheaper is the camera in the UK than Germany? Give your answer in GBR £.



Week 11: Day 5 Answers

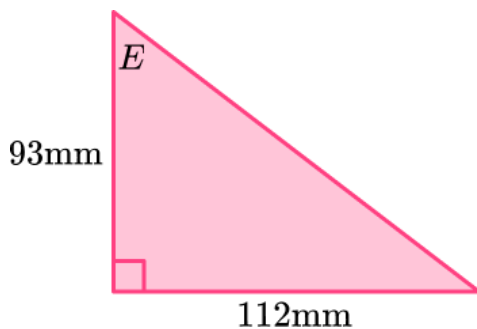
- 1) Find the highest common factor (HCF) of 42, 70 and 91. 7

- 2) Expand and simplify:

$$\begin{aligned} & 2(2x + 1) - 2x(3 - x) \\ &= 4x + 2 - 6x + 2x^2 \\ &= 2x^2 - 2x + 2 \end{aligned}$$

- 3) Write 0.0013 in standard form. 1.3×10^{-3}

- 4) Find the size of angle E , giving your answer to one decimal place. 50.3°



- 5) A camera costs £250 in the UK. The same camera costs €322 in Germany. How much cheaper is the camera in the UK than Germany? Give your answer in GBR £. £30



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