

Week 12

This week in a nutshell:

The final week of the term visits familiar topics. It is worth noting, and possibly facilitating discussion on, that for question 5, some problems have multiple routes to the solution. Students may want to find more than one way and then compare the efficiency of their solutions.

Question 1: Arithmetic with fractions

Question 2: Calculating a percentage change

Question 3: Highest common factor

Question 4: Volume

Question 5: Angle problems

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: **Arithmetic with fractions**

- Can a fraction be considered 'arithmetic' in its own entity?

Question 2: **Calculating a percentage change**

- *reflect on previous learning*

Question 3: **Highest common factor**

- Do we ever use the lowest common factor?

Question 4: **Volume**

- What is important about the lengths used when calculating volume?

Question 5: **Angle problems**

- What do you do first when dealing with an angle problem?
- How do diagrams help when solving angle problems?

Week 12: Day 1

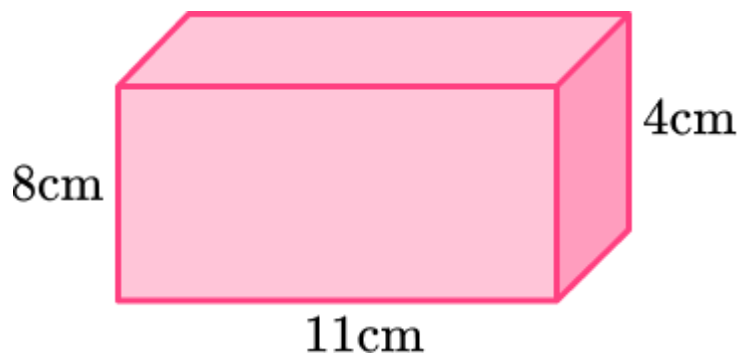
1) Evaluate:

$$\frac{1}{2} + \frac{1}{3} =$$

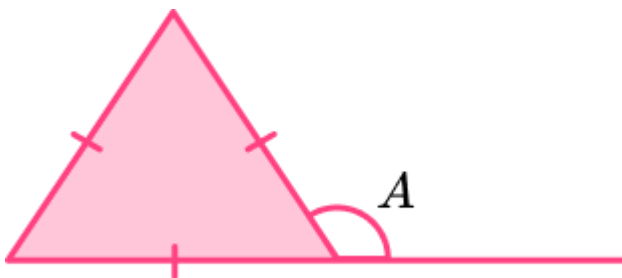
2) Find the percentage change when 30 is increased to 45.

3) Find the highest common factor of 14 and 21.

4) Calculate the volume of the cuboid.



5) Work out the size of angle A.



Week 12: Day 1 Answers

- 1) Evaluate:

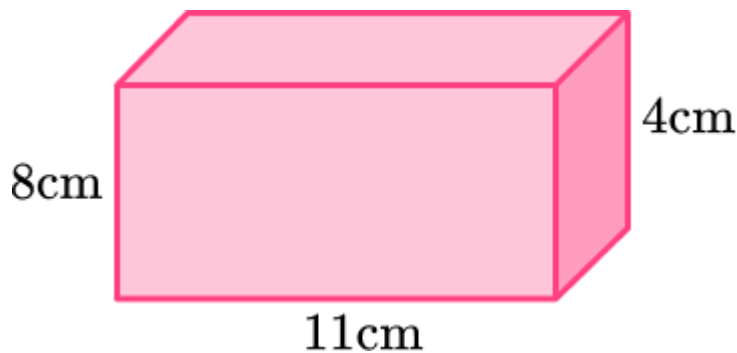
$$\frac{1}{2} + \frac{1}{3} = \frac{5}{6}$$

- 2) Find the percentage change when 30 is increased to 45.

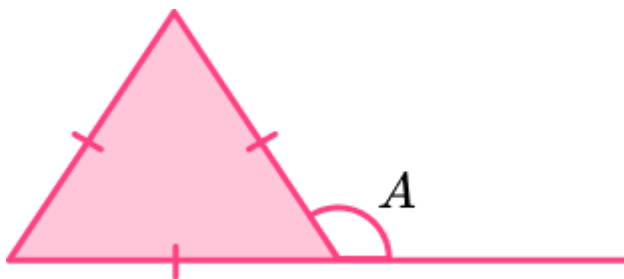
50% (increase)

- 3) Find the highest common factor of 14 and 21. 7

- 4) Calculate the volume of the cuboid. 352cm^3



- 5) Work out the size of angle A. 120°



Week 12: Day 2

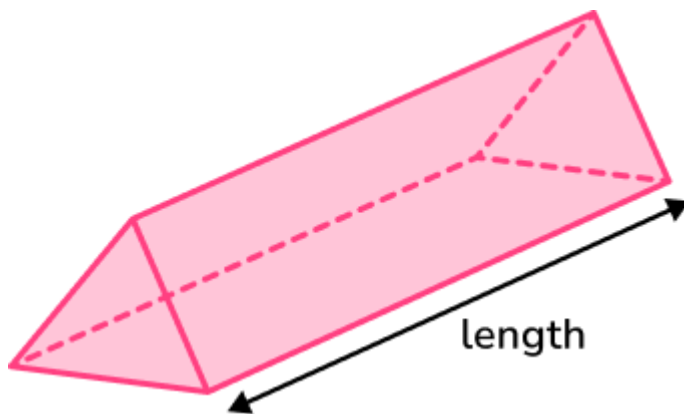
1) Evaluate:

$$\frac{3}{5} \times \frac{2}{3} =$$

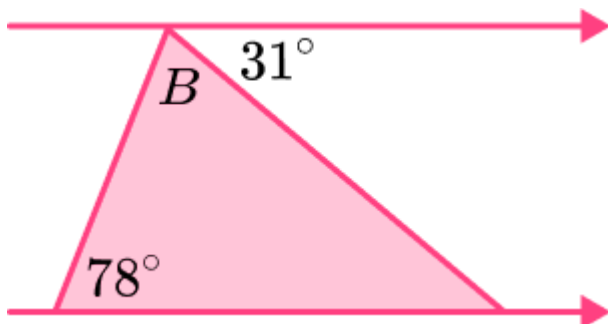
2) Find the percentage change when 80 is increased to 90.

3) Find the highest common factor of 18 and 28.

4) Given that the area of the triangular cross-section is 7.2cm^2 , what is the length of this prism, which has volume 115.2cm^3 .



5) Work out the size of angle B .



Week 12: Day 2 Answers

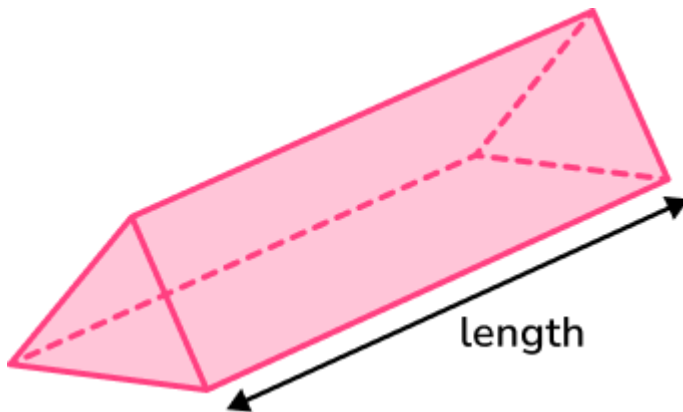
- 1) Evaluate:

$$\frac{3}{5} \times \frac{2}{3} = \frac{2}{5}$$

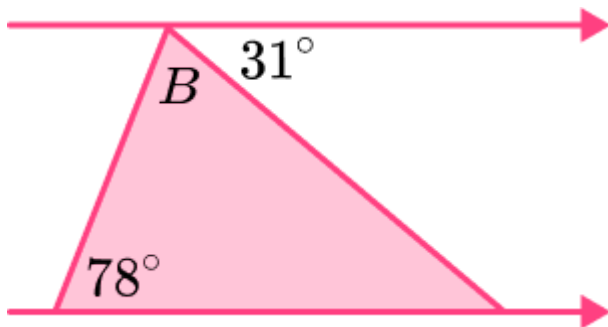
- 2) Find the percentage change when 80 is increased to 90.
12.5% (increase)

- 3) Find the highest common factor of 18 and 28. 2

- 4) Given that the area of the triangular cross-section is 7.2cm^2 , what is the length of this prism, which has volume 115.2cm^3 .
16cm



- 5) Work out the size of angle B . 71°



Week 12: Day 3

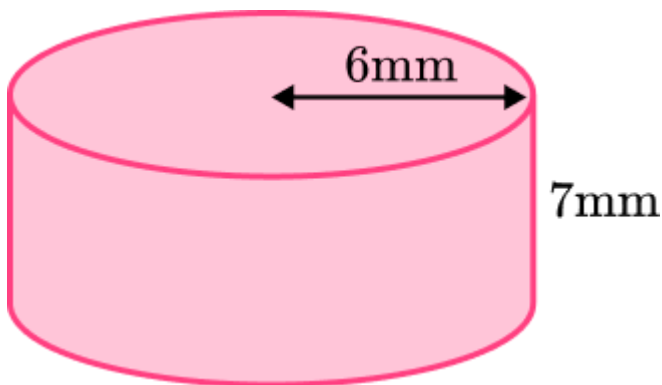
- 1) Evaluate:

$$\frac{7}{8} - \frac{3}{4} =$$

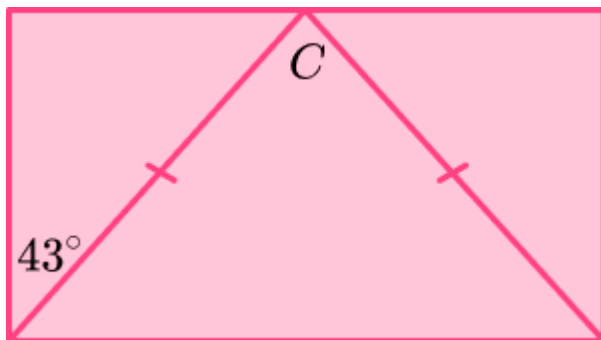
- 2) Find the percentage change when 50 is decreased to 30.

- 3) Find the highest common factor of 34 and 51.

- 4) Calculate the volume of this cylinder, giving your answer to one decimal place.



- 5) The diagram shows a triangle inscribed in a rectangle. Work out the size of angle C .



Week 12: Day 3 Answers

- 1) Evaluate:

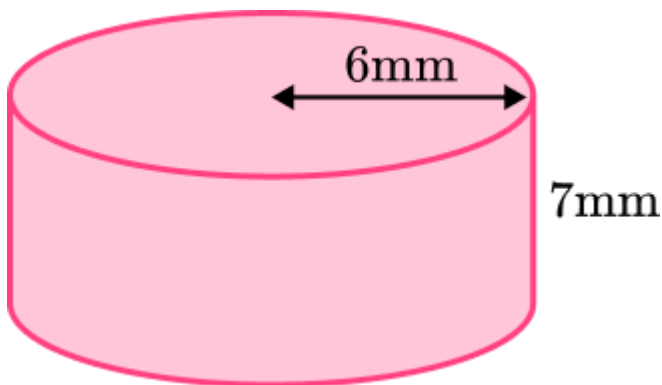
$$\frac{7}{8} - \frac{3}{4} = \frac{1}{8}$$

- 2) Find the percentage change when 50 is decreased to 30.
40% (decrease)

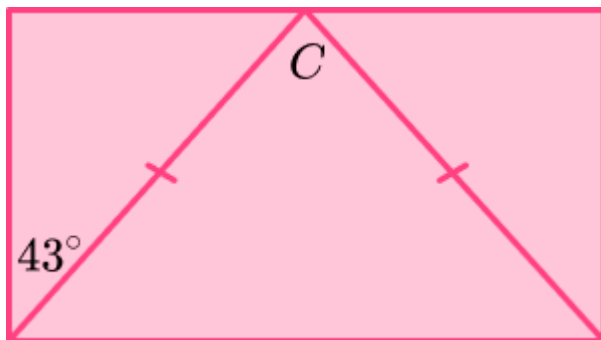
- 3) Find the highest common factor of 34 and 51. 17

- 4) Calculate the volume of this cylinder, giving your answer to one decimal place.

791.7cm³



- 5) The diagram shows a triangle inscribed in a rectangle. Work out the size of angle C. 86°



Week 12: Day 4

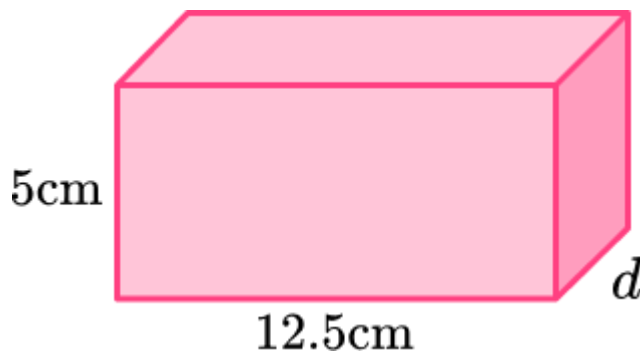
1) **Evaluate:**

$$\frac{5}{6} \div \frac{1}{3} =$$

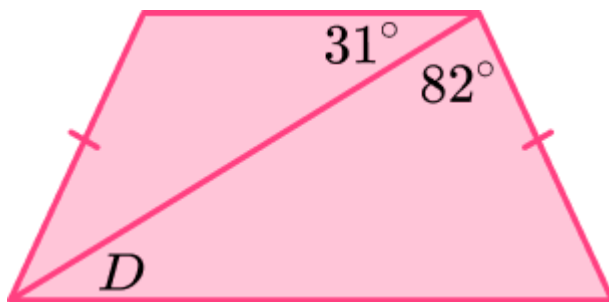
2) Find the percentage change when 24 is increased to 33.

3) Find the highest common factor of 12, 24 and 26.

4) The volume of this cuboid is 187.5cm^3 .
What is the length of edge d ?



5) The shape below is an isosceles trapezium.
Work out the size of angle D .



Week 12: Day 4 Answers

1) Evaluate:

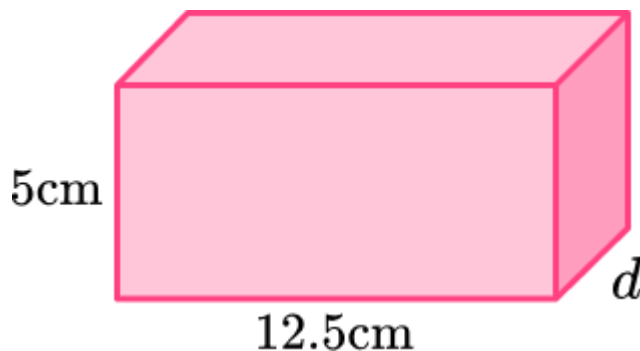
$$\frac{5}{6} \div \frac{1}{3} = \frac{5}{2} \text{ or } 2\frac{1}{2}$$

2) Find the percentage change when 24 is increased to 33.

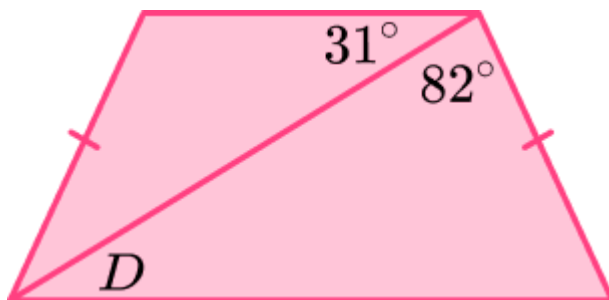
37.5% (increase)

3) Find the highest common factor of 12, 24 and 26. 2

4) The volume of this cuboid is 187.5cm^3 .
What is the length of edge d ? 3cm



5) The shape below is an isosceles trapezium.
Work out the size of angle D . 31°



Week 12: Day 5

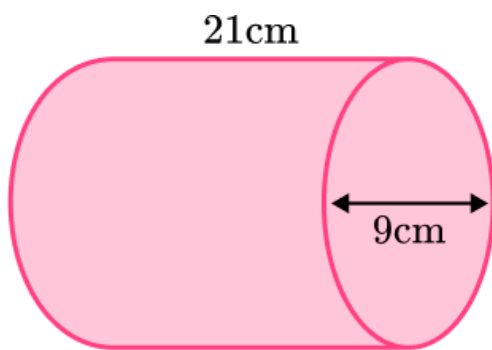
1) Evaluate:

$$\frac{2}{5} + \frac{2}{3} - \frac{1}{6} =$$

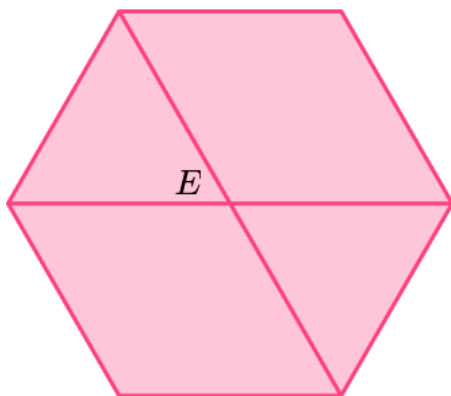
2) Find the percentage change when 125 is decreased to 100.

3) Find the highest common factor of 8, 24 and 40.

4) Work out the volume of this cylinder, giving your answer to one decimal place.



5) The shape below is a regular hexagon. Work out the size of angle E .



Week 12: Day 5 Answers

1) Evaluate:

$$\frac{2}{5} + \frac{2}{3} - \frac{1}{6} = \frac{9}{10}$$

2) Find the percentage change when 125 is decreased to 100.

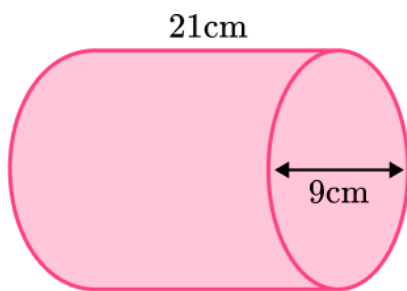
20% (decrease)

3) Find the highest common factor of 8, 24 and 40.

8

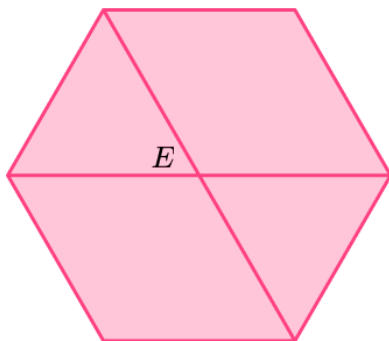
4) Work out the volume of this cylinder, giving your answer to one decimal place.

1336.0cm³



5) The shape below is a regular hexagon.

Work out the size of angle E . 60°



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