

Week 6

This week in a nutshell:

This week features rearranging formulae, as a way of solidifying recent material. Like last week, students may need time to discuss this skill afterwards or deal with misconceptions. With this in mind, the other questions do not introduce new ideas. They aim to build fluency and confidence.

Question 1: Sharing in a given ratio

Question 2: Improper fractions and mixed numbers

Question 3: Rearranging formulae

Question 4: Angles in parallel lines

Question 5: Probability

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: **Sharing in a given ratio**

- Apart from using ratio, how else might we share a quantity unequally?

Question 2: **Improper fractions and mixed numbers**

- Which is easier to work with, improper fractions or mixed numbers?
- Which is more useful, improper fractions or mixed numbers?

Question 3: **Rearranging formulae**

- Does rearranging a formula change it?

Question 4: **Angles in parallel lines**

- What are parallel lines?
- What rules for parallel lines do you know?

Question 5: **Probability**

- Are there any certainties in probability?

Week 6: Day 1

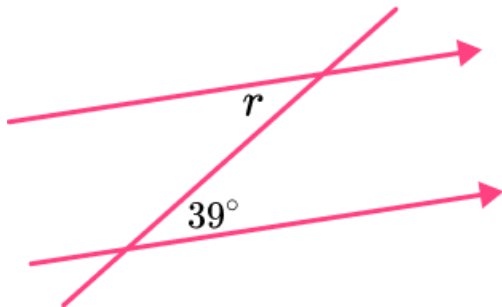
1) Find the larger amount when £63 is shared in the ratio 3:4

2) Write $\frac{15}{4}$ as a mixed number.

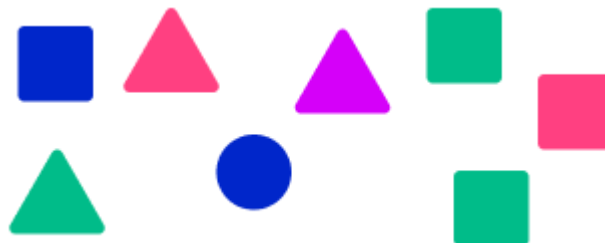
3) Rearrange the formula to make t the subject:

$$s = \frac{d}{t}$$

4) What is the size of the angle marked r ?
State the angle rule used.



5) The coloured shapes below are placed in a bag. When taking a shape from the bag at random, what is the probability of selecting a square?



Week 6: Day 1 Answers

- 1) Find the larger amount when £63 is shared in the ratio 3:4 £36

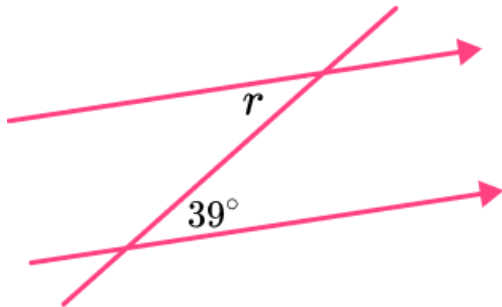
- 2) Write $\frac{15}{4}$ as a mixed number.
 $3\frac{3}{4}$

- 3) Rearrange the formula to make t the subject:

$$s = \frac{d}{t} \quad t = \frac{d}{s}$$

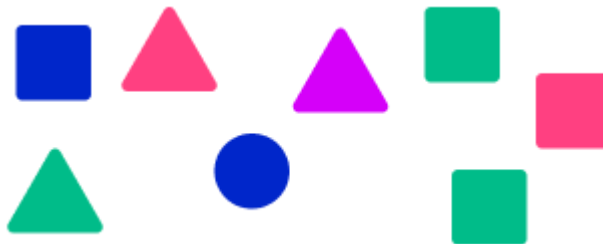
- 4) What is the size of the angle marked r ?
 State the angle rule used.

39° , alternate angles are equal



- 5) The coloured shapes below are placed in a bag. When taking a shape from the bag at random, what is the probability of selecting a square?

$$\frac{1}{2}$$



Week 6: Day 2

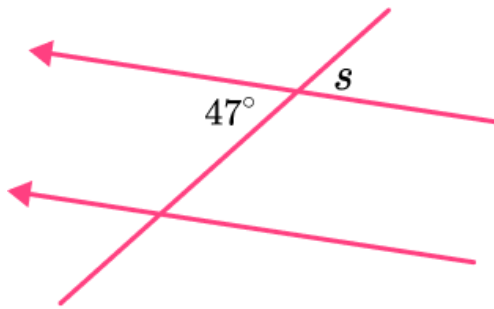
1) Find the larger amount when €45 is shared in the ratio 2:1

2) Write $3\frac{4}{5}$ as an improper fraction.

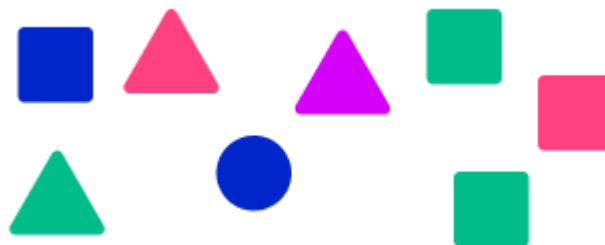
3) Rearrange the formula to make F the subject:

$$W = Fd$$

4) What is the size of the angle marked s ?
State the angle rule used.



5) The coloured shapes below are placed in a bag. When taking a shape from the bag at random, what is the probability of selecting a blue shape?



Week 6: Day 2 Answers

1) Find the larger amount when €45 is shared in the ratio 2:1 €30

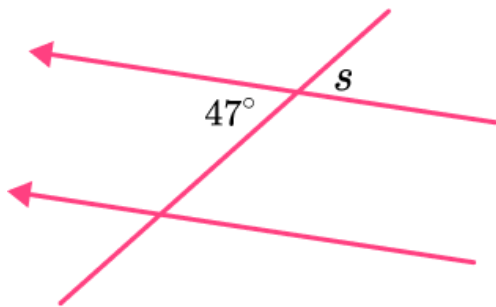
2) Write $3\frac{4}{5}$ as an improper fraction.
 $\frac{19}{5}$

3) Rearrange the formula to make F the subject:

$$W = Fd \quad F = \frac{W}{d}$$

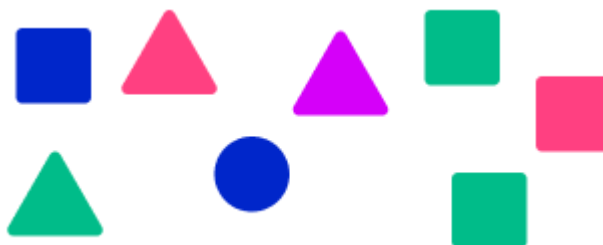
4) What is the size of the angle marked s ?
State the angle rule used.

47°, vertically opposite angles are equal



5) The coloured shapes below are placed in a bag. When taking a shape from the bag at random, what is the probability of selecting a blue shape?

$\frac{1}{4}$



Week 6: Day 3

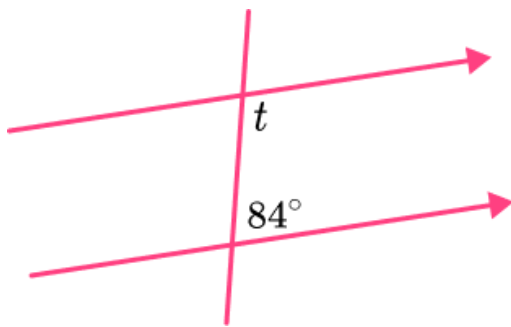
1) Find the smaller amount when 1.65m is shared in the ratio 3:2

2) Write $\frac{29}{8}$ as a mixed number.

3) Rearrange the formula to make g the subject:

$$P = mgh$$

4) What is the size of the angle marked t ?
State the angle rule used.



5) The coloured shapes below are placed in a bag. When taking a shape from the bag at random, what is the probability of selecting a triangle?



Week 6: Day 3 Answers

- 1) Find the smaller amount when 1.65m is shared in the ratio 3:2 $0.66m$

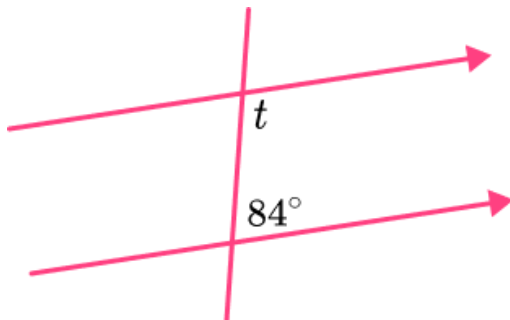
- 2) Write $\frac{29}{8}$ as a mixed number.
 $3\frac{5}{8}$

- 3) Rearrange the formula to make g the subject:

$$P = mgh \quad g = \frac{P}{mh}$$

- 4) What is the size of the angle marked t ?
State the angle rule used.

96° , co-interior angles sum to 180°



- 5) The coloured shapes below are placed in a bag. When taking a shape from the bag at random, what is the probability of selecting a triangle?

$\frac{1}{3}$



Week 6: Day 4

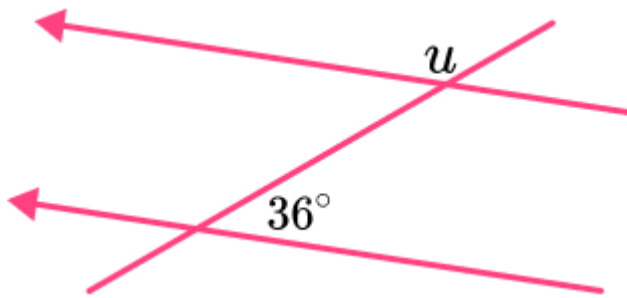
1) Find the smaller amount when \$144 is shared in the ratio 7:5

2) Write $4\frac{7}{8}$ as an improper fraction.

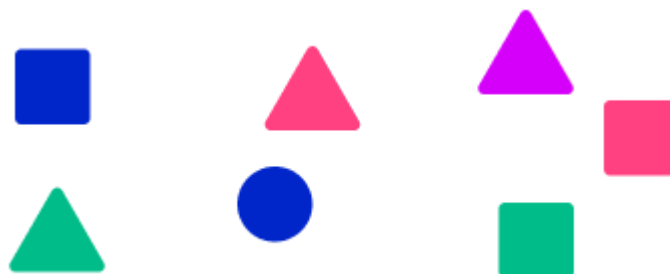
3) Rearrange the formula to make a the subject:

$$v = u + at$$

4) What is the size of the angle marked u ?



5) The coloured shapes below are placed in a bag. When taking a shape from the bag at random, what is the probability of selecting a circle or a square?



Week 6: Day 4 Answers

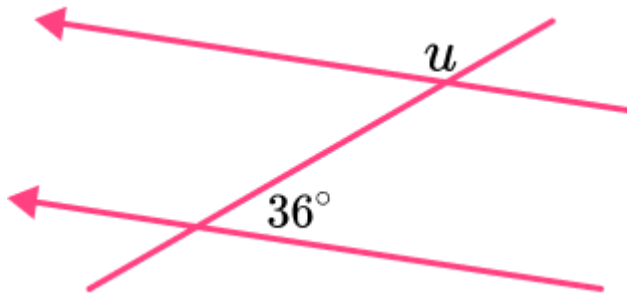
- 1) Find the smaller amount when \$144 is shared in the ratio 7:5 \$60

- 2) Write $4\frac{7}{8}$ as an improper fraction.
 $\frac{39}{8}$

- 3) Rearrange the formula to make a the subject:

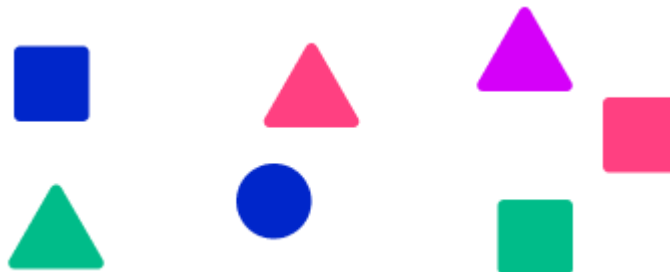
$$v = u + at \qquad a = \frac{v-u}{t}$$

- 4) What is the size of the angle marked u ? 144°



- 5) The coloured shapes below are placed in a bag. When taking a shape from the bag at random, what is the probability of selecting a circle or a square?

$$\frac{4}{7}$$



Week 6: Day 5

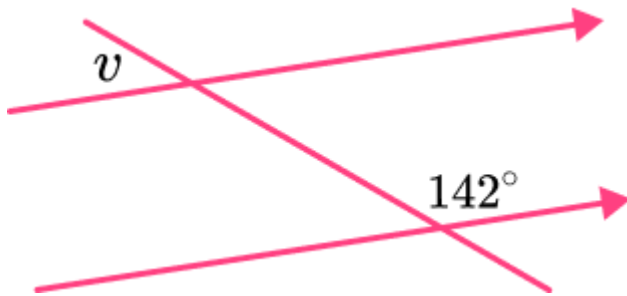
1) Find the largest amount when £72 is shared in the ratio 1:2:3

2) Write $7\frac{2}{7}$ as an improper fraction.

3) Rearrange the formula to make v the subject:

$$E = \frac{1}{2}mv^2$$

4) What is the size of the angle marked v ?



5) The coloured shapes below are placed in a bag. When taking a shape from the bag at random, what is the probability of not selecting a circle?



Week 6: Day 5 Answers

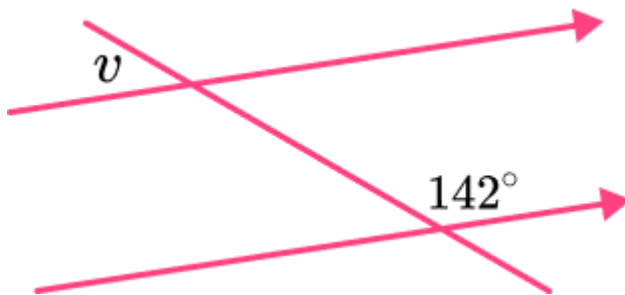
- 1) Find the largest amount when £72 is shared in the ratio 1:2:3 **£36**

- 2) Write $7\frac{2}{7}$ as an improper fraction.
 $\frac{51}{7}$

- 3) Rearrange the formula to make v the subject:

$$E = \frac{1}{2}mv^2 \quad v = \sqrt{\frac{2E}{m}}$$

- 4) What is the size of the angle marked v ? **38°**



- 5) The coloured shapes below are placed in a bag. When taking a shape from the bag at random, what is the probability of not selecting a circle?

$\frac{4}{5}$



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