

Week 9

This week in a nutshell:

The topics here could be considered technical in nature, so students may require slightly longer to answer questions.

You may wish to discuss strategies for the completion of Venn diagrams and whether students can use similar strategies as when completing two-way tables.

Question 1: Surds

Question 2: Dividing a quantity using ratio

Question 3: Terminating decimals and fractions

Question 4: Gradients

Question 5: Venn diagrams

This week's ideas for class discussion include:

Question 1: **Surds**

- Why might we want to keep answers exact (in surd form)?
- How does work on surds rely on your understanding of square numbers?

Question 2: **Dividing a quantity using ratio**

- How might mixing up the steps in your method change your results when answering questions on this topic?

Question 3: **Terminating decimals using fractions**

- Is there a way to know if a fraction will result in a terminating or recurring decimal?
- Can you think how to tell how many decimal places a fraction will have given its numerator and denominator?

Question 4: **Gradients**

- Where are gradients important outside of the classroom?

Question 5: **Venn diagrams**

- Why do you think a visual representation (such as a Venn diagram) was developed?

Week 9: Day 1

1) Simplify these surds:

a) $\sqrt{24}$

b) $\sqrt{36}$

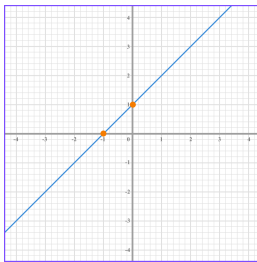
2) Share £25 in the ratio 2:3.

3) Express as a fraction:

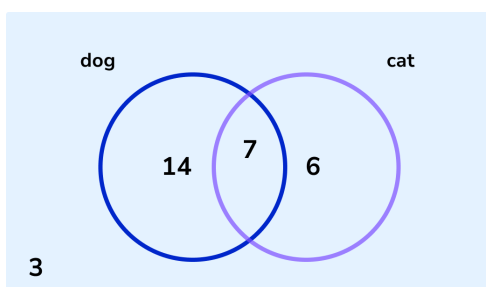
a) 0.5

b) 0.75

4) Determine the gradient of this line.



5) How many people owned a cat or a dog?



Week 9: Day 1 Answers

1) Simplify these surds:

a) $\sqrt{24}$ $2\sqrt{6}$

b) $\sqrt{36}$ 6

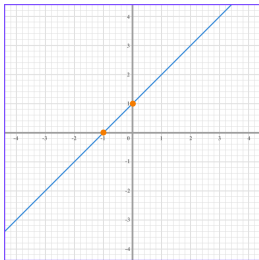
2) Share £25 in the ratio 2:3. **£10 and £15**

3) Express as a fraction:

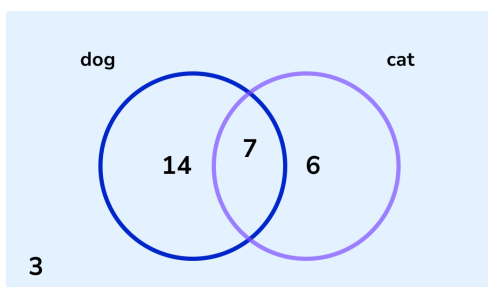
a) 0.5 $\frac{1}{2}$

b) 0.75 $\frac{3}{4}$

4) Determine the gradient of this line. **1**



5) How many people owned a cat or a dog? **27**



Week 9: Day 2

1) Simplify these surds:

a) $\sqrt{28}$

b) $\sqrt{72}$

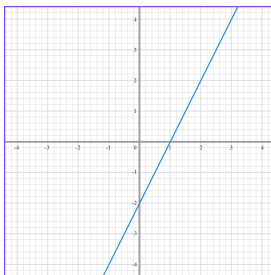
2) Share 42cm in the ratio 4:3.

3) Express as a fraction:

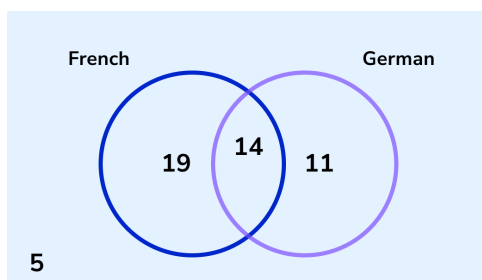
a) 0.2

b) 0.35

4) Determine the gradient of this line.



5) Using the Venn diagram below, how many people speak French?



Week 9: Day 2 Answers

1) Simplify these surds:

a) $\sqrt{28}$ $2\sqrt{7}$

b) $\sqrt{72}$ $6\sqrt{2}$

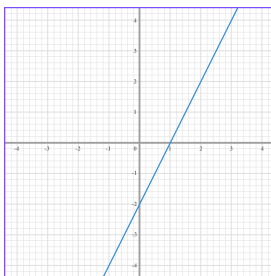
2) Share 42cm in the ratio 4:3. 24cm and 18cm

3) Express as a fraction:

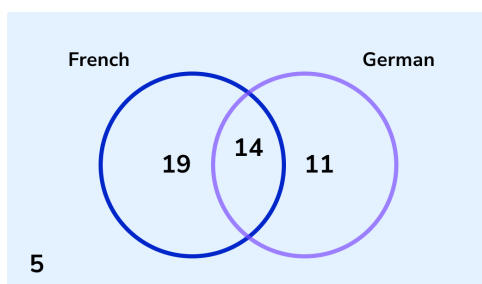
a) 0.2 $\frac{1}{5}$

b) 0.35 $\frac{35}{100}$ or $\frac{7}{20}$

4) Determine the gradient of this line. 2



5) Using the Venn diagram below, how many people speak French? 33



Week 9: Day 3

1) Simplify:

a) $\sqrt{2} + 3\sqrt{2}$

b) $7\sqrt{3} - 2\sqrt{3}$

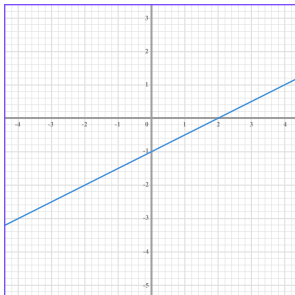
2) Share \$360 in the ratio 3:1:2.

3) Express as a fraction in its simplest form:

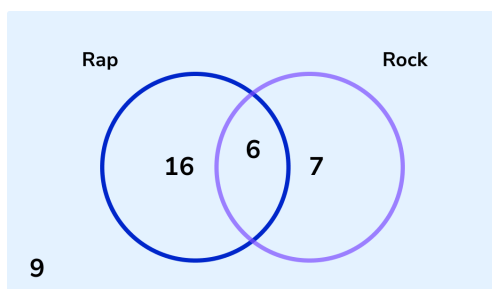
a) 0.45

b) 0.82

4) Determine the gradient of this line.



5) Using the Venn diagram below, how many people did not like rap?



Week 9: Day 3 Answers

1) Simplify:

a) $\sqrt{2} + 3\sqrt{2}$ $4\sqrt{2}$

b) $7\sqrt{3} - 2\sqrt{3}$ $5\sqrt{3}$

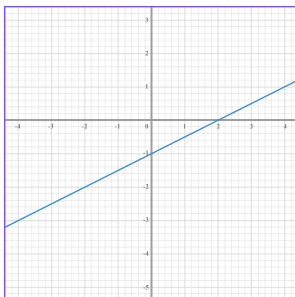
2) Share \$360 in the ratio 3:1:2. $\$180$, $\$60$ and $\$120$

3) Express as a fraction in its simplest form:

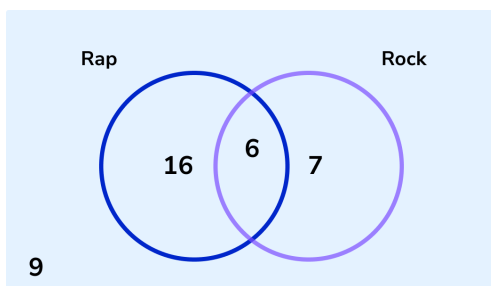
a) 0.45 $\frac{45}{100}$ or $\frac{9}{20}$

b) 0.82 $\frac{82}{100}$ or $\frac{41}{50}$

4) Determine the gradient of this line. $\frac{1}{2}$



5) Using the Venn diagram below, how many people did not like rap? 16



Week 9: Day 4

1) Simplify:

a) $\sqrt{18} + 2\sqrt{2}$

b) $\sqrt{48} + \sqrt{12}$

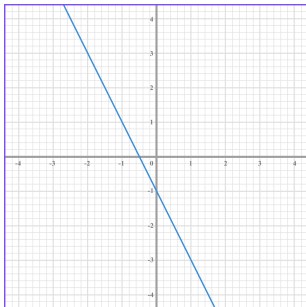
2) Share 60L in the ratio 1.5:4.5.

3) Express as a decimal:

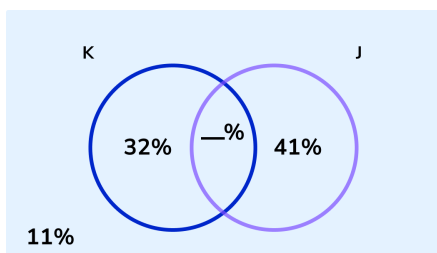
a) $\frac{3}{8}$

b) $\frac{1}{4}$

4) Determine the gradient of this line.



5) What number completes the Venn diagram?



Week 9: Day 4 Answers

1) Simplify:

a) $\sqrt{18} + 2\sqrt{2}$ $5\sqrt{2}$

b) $\sqrt{48} + \sqrt{12}$ $6\sqrt{3}$

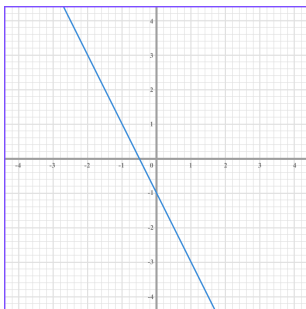
2) Share 60L in the ratio 1.5:4.5. 15L and 45L

3) Express as a decimal:

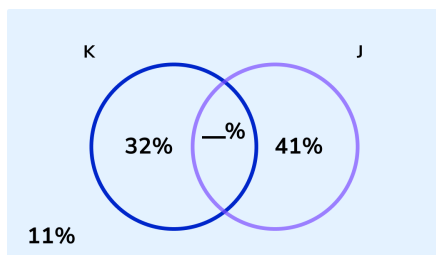
a) $\frac{3}{8}$ 0.375

b) $\frac{1}{4}$ 0.25

4) Determine the gradient of this line. -2



5) What number completes the Venn diagram? 16



Week 9: Day 5

1) Simplify:

a) $\sqrt{240}$

b) $\sqrt{124}$

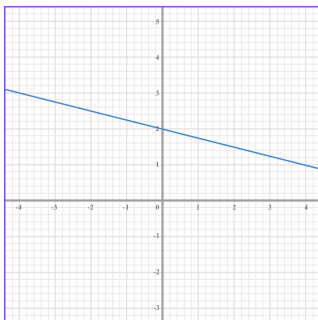
2) Share £750 in the ratio 1:3:6.

3) Express as a decimal:

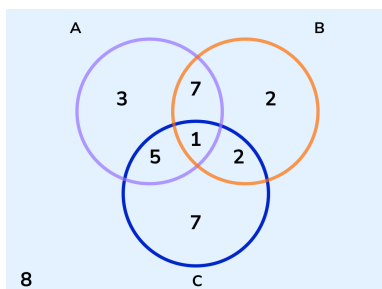
a) $\frac{3}{16}$

b) $\frac{37}{200}$

4) Determine the gradient of this line.



5) How many people are represented in this Venn diagram?



Week : Day 5 Answers

1) Simplify:

a) $\sqrt{240}$ $4\sqrt{15}$

b) $\sqrt{124}$ $2\sqrt{31}$

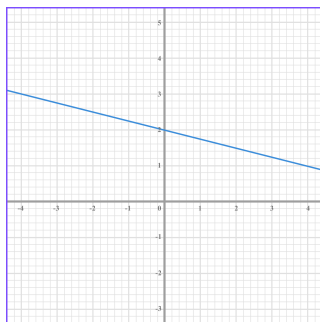
2) Share £750 in the ratio 1:3:6. **£75, £225 and £450**

3) Express as a decimal:

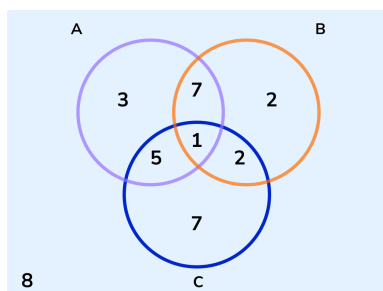
a) $3/16$ **0.1875**

b) $37/200$ **0.185**

4) Determine the gradient of this line. **$-\frac{1}{4}$**



5) How many people are represented in this Venn diagram? **35**



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