R4b. Reverse Fractions

OCR

(b) Pierre and Alice are each paid the same amount for each hour they work.

Pierre is paid £240. He works for $\frac{4}{5}$ of the time Alice works.

How much is Alice paid?

(b) £ ..... **[2]**

(c) Pierre changes £250 into euros.
£1 is worth 1.26 euros.

How many euros does he receive?

(c) ..... euros **[2]**

Created by W Neill

11 (a) Liu has a bag only containing red grapes and green grapes.

R4B $\frac{4}{9}$ of the grapes are red.

If there are 8 red grapes in the bag, how many grapes are green?

(a) ..... **[3]**

Created by W Neill

11 (a) Liu has a bag only containing red grapes and green grapes.

$\frac{4}{9}$ of the grapes are red.

R4B

$4/9 + 5/9 = 1$

If there are 8 red grapes in the bag, how many grapes are green?

$4/9$ = Red

$4/9 = 8$

$1/9 = 2$ (÷4)

Green = $5/9$

$1/9 = 2$

$5/9 = 10$ (×5)

(a) 10 ..... **[3]**

(b) Pierre and Alice are each paid the same amount for each hour they work.

Pierre is paid £240. He works for $\frac{4}{5}$ of the time Alice works.

How much is Alice paid?

$\frac{4}{5} = £240$ ÷4 → $\frac{1}{5} = £60$ ÷4

$\frac{5}{5} = £60 \times 5$

(b) £ £300 **[2]**

(c) Pierre changes £250 into euros.
£1 is worth 1.26 euros.

How many euros does he receive?

£1 = €1.26 ×250 → £250 = €315

(c) 315 euros **[2]**

4 Jeat is growing carrots from seed in his garden.
He plants 28 carrot seeds but only 12 grow.

Jeat says

The probability of one of my carrot seeds growing is $\frac{3}{7}$.

(a) Use Jeat's result to show that he is correct. **[1]**

N32

(b) A farmer uses this probability to calculate how many carrot seeds he should plant to grow 10 000 carrots.

R4b

How many seeds should he plant?

(b) ..... seeds **[2]**

(c) Explain why it may not be sensible for the farmer to use Jeat's experimental probability to calculate the number of seeds he should plant.

.....

.....

..... **[1]**

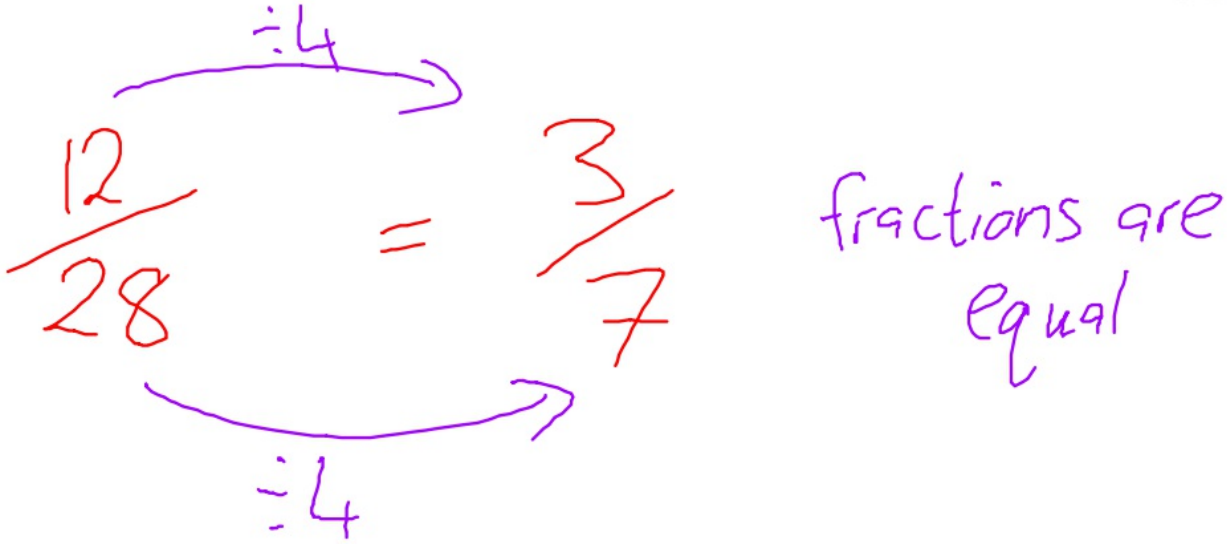
4 Jeat is growing carrots from seed in his garden.
He plants 28 carrot seeds but only 12 grow.

Jeat says

The probability of one of my carrot seeds growing is $\frac{3}{7}$.

(a) Use Jeat's result to show that he is correct. **[1]**

N32



(b) A farmer uses this probability to calculate how many carrot seeds he should plant to grow 10 000 carrots.

R4b

How many seeds should he plant?

7/7 =

3/7 = 10000

1/7 =

(b) 23333 ✓ seeds **[2]**

(c) Explain why it may not be sensible for the farmer to use Jeat's experimental probability to calculate the number of seeds he should plant.

Sample of 28 seeds is too small

different land so maybe different growing conditions ✓ **[1]**

Edexcel

22 There are only red counters, blue counters and green counters in a bag.

number of red counters : number of blue counters : number of green counters = 1 : 3 : 7

A counter is going to be taken at random from the bag.

(a) Complete the table below to show each of the probabilities that the counter will be red or blue or green.

Colour	red	blue	green
Probability			

(2)

Jamie takes at random a counter from the bag and records the colour of the counter.
He then puts the counter back in the bag.

Jamie does this a number of times.
He records a total of 68 blue counters.

(b) Work out an estimate for the total number of times Jamie takes a counter from the bag.

.....

(2)

(Total for Question 4 is 4 marks)

There are only red counters, blue counters and green counters in a bag.

number of red counters : number of blue counters : number of green counters = 1 : 3 : 7

A counter is going to be taken at random from the bag.

(a) Complete the table below to show each of the probabilities that the counter will be red or blue or green.

Colour	red	blue	green
Probability	$\frac{1}{11}$	$\frac{3}{11}$	$\frac{7}{11}$

(2)

Jamie takes at random a counter from the bag and records the colour of the counter.
He then puts the counter back in the bag.

Jamie does this a number of times.
He records a total of 68 blue counters.

(b) Work out an estimate for the total number of times Jamie takes a counter from the bag.

Blue $= \frac{3}{11}$

$\frac{3}{11} = 68$

$\frac{1}{11} = 22.\dot{6}$

$\frac{11}{11} = 249.\dot{3}$

249 or 250 ✓

(2)

(Total for Question 4 is 4 marks)

Video created by W Neill

14 A jar contains sugar.

R4b The jar and the sugar have a total weight of 850 g.

Anna uses $\frac{2}{3}$ of the sugar.

The jar and the sugar now have a total weight of 530 g.

Work out the weight of the jar.

..... g

(Total for Question 14 is 3 marks)

Video created by W Neill

14 A jar contains sugar.

R4b

The jar and the sugar have a total weight of 850 g.

Anna uses $\frac{2}{3}$ of the sugar.

The jar and the sugar now have a total weight of 530 g.

Work out the weight of the jar.

$\frac{2}{3} = 320g$

$\frac{1}{3} = 160g$) x3

Total sug = $\frac{3}{3} = 480g$

$\frac{2}{3} = \begin{array}{r} 850 \\ -530 \\ \hline 320 \end{array}$

Jar → 850 − 480 = 370 g ✓

(Total for Question 14 is 3 marks)

Video created by W Neill

18 On Saturday, some adults and some children were in a theatre.
The ratio of the number of adults to the number of children was 5 : 2

Each person had a seat in the Circle or had a seat in the Stalls.

$\frac{3}{4}$ of the children had seats in the Stalls.
117 children had seats in the Circle.

There are exactly 2600 seats in the theatre.

On this Saturday, were there people on more than 60% of the seats?
You must show how you get your answer.

Video created by W Neill

18 On Saturday, some adults and some children were in a theatre.
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117 children had seats in the Circle.

There are exactly 2600 seats in the theatre.

On this Saturday, were there people on more than 60% of the seats?
You must show how you get your answer.

Children

3/4 Stalls

1/4 Circle (117)

1/4 = 117 ×3

3/4 = 351 ×3

Children = 468 ✓

468 = 2part
234 = 1part
1170 = 5parts

Adults	:	Children
5	:	2
1170	:	468 ✓

Total = 1638 people

1638 people in theatre.

$\frac{1638}{2600} = 0.63$

63% full

Yes, more than 60% of seats were full.

Video created by W Neill

4 $\frac{4}{5}$ of a number is 32

Find the number.

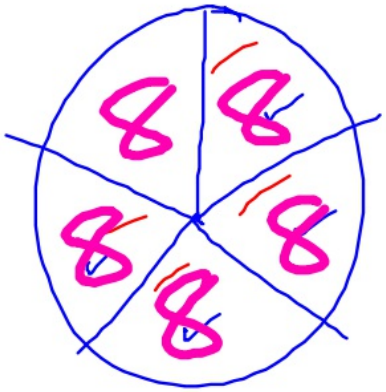
.....

(Total for Question 4 is 2 marks)

Video created by W Neill

4 $\frac{4}{5}$ of a number is 32

Find the number.



$\frac{4}{5} = 32$ (÷4)

$\frac{1}{5} = 8$ (×5)

$\frac{5}{5} = 40$

40 ✓

(Total for Question 4 is 2 marks)

10 Jim thinks of a number.

$\frac{2}{3}$ of Jim's number is 48

Work out $\frac{5}{6}$ of Jim's number.

.....

(Total for Question 10 is 2 marks)

Created by W Neill

10 Jim thinks of a number.

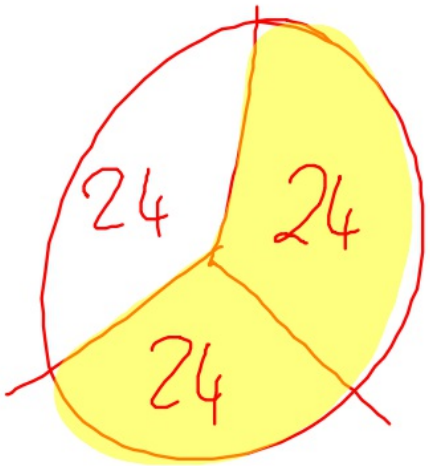
$\frac{2}{3}$ of Jim's number is 48

Work out $\frac{5}{6}$ of Jim's number.

Jim's number = 72

5/6 of 72 = 60

2/3 is 48



2/3 = 48

1/3 = 24

24x3 = 72

60 ✓

(Total for Question 10 is 2 marks)

Video created by W Neill

16 Alan, Bispah and Chan share a sum of money.

R4a Alan gets $\frac{1}{8}$ of the money.

R4b Bispah gets $\frac{1}{2}$ of the money.

Chan gets the rest of the money.

Alan gets £2.50

(a) Work out how much money Bispah gets.

£.....

(2)

(b) Find the ratio

amount of money Alan gets : amount of money Chan gets

R13 Give your answer in the form $a : b$ where a and b are whole numbers.

.....

(3)

Video created by W Neill

16 Alan, Bispah and Chan share a sum of money.

R4a Alan gets $\frac{1}{8}$ of the money.

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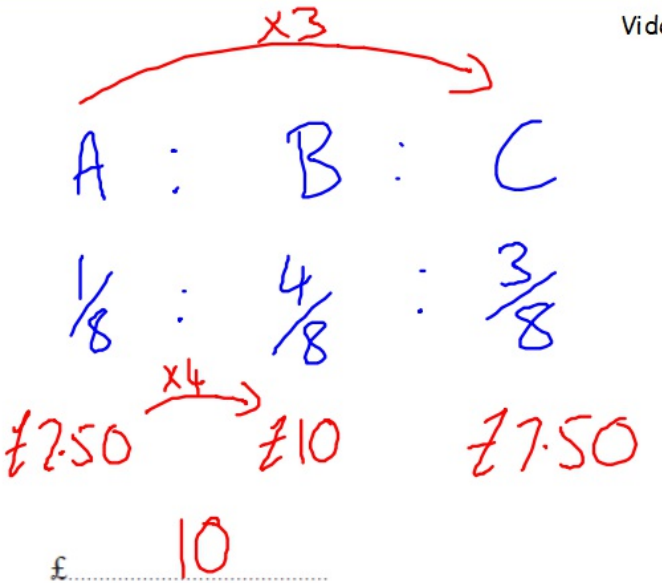
(a) Work out how much money Bispah gets.



1/2 = 4/8

£ 10

(2)

(b) Find the ratio

amount of money Alan gets : amount of money Chan gets

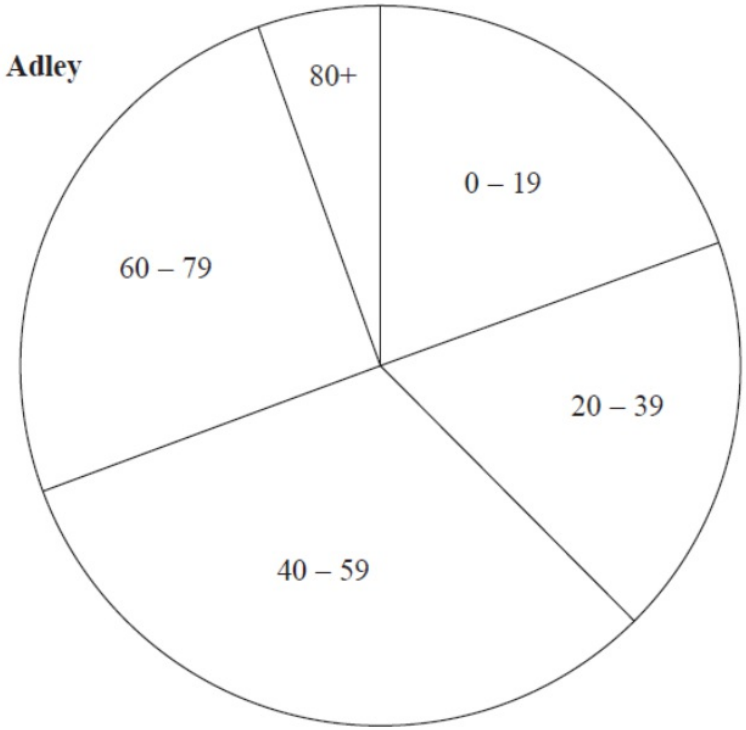
R13 Give your answer in the form $a : b$ where a and b are whole numbers.

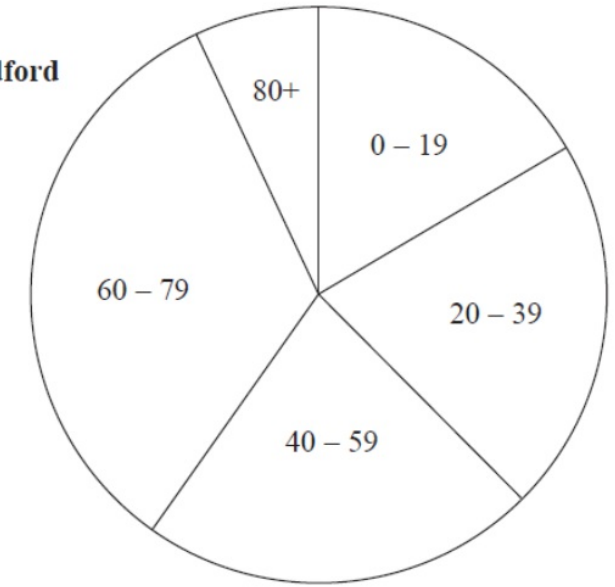
2.50 : 7.50

1 : 3 ✓

(3)

11 The pie charts give information about the ages, in years, of people living in two towns, Adley and Bridford.





Diagrams accurately drawn

The ratio of the number of people living in Adley to the number of people living in Bridford is given by the ratio of the areas of the pie charts.

What proportion of the total number of people living in these two towns live in Adley **and** are aged 0 – 19?
Give your answer correct to 3 significant figures.

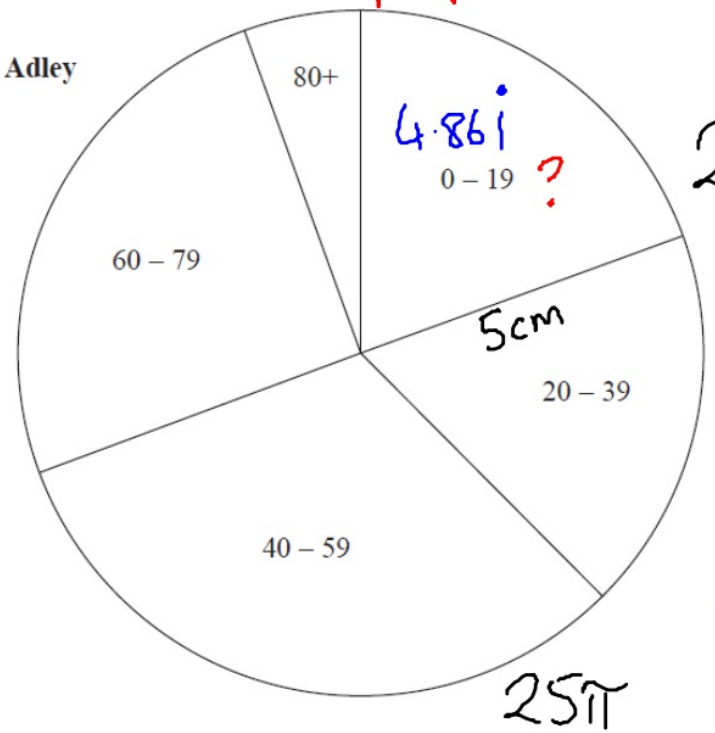
.....

(Total for Question 11 is 3 marks)

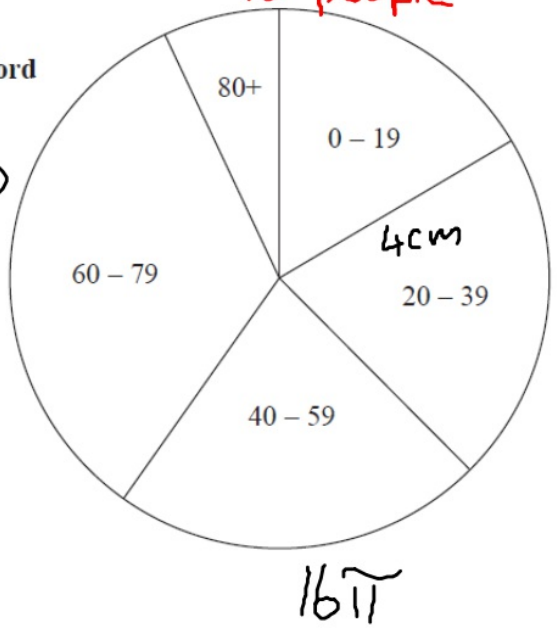
11 The pie charts give information about the ages, in years, of people living in two towns, Adley and Bridford.

Created by W Neill

25 people



16 people



Diagrams accurately drawn

4·861 ?

25 : 16

41

Area

$R^2 \times \pi$

25π

16π

Adley $\frac{70^\circ}{360}$ of 25 people

The ratio of the number of people living in Adley to the number of people living in Bridford is given by the ratio of the areas of the pie charts.

What proportion of the total number of people living in these two towns live in Adley **and** are aged 0 – 19?
Give your answer correct to 3 significant figures.

Ans $\frac{4.861}{41}$ 11.8563%

.....

(Total for Question 11 is 3 marks)

AQA

Video created by W Neill

7 $\frac{3}{5}$ of a number is 162

R4b

Work out the number.

[2 marks]

Answer _____

Video created by W Neill

7 $\frac{3}{5}$ of a number is 162

R4b

Work out the number.

[2 marks]

$\frac{3}{5} = 162$

÷3 ↓

$\frac{1}{5} = 54$

$3\overline{)162}$ $\quad 54$

×5 ↓

$\frac{5}{5} =$

$\begin{array}{r} 54 \\ \times 5 \\ \hline 270 \end{array}$

Answer 270 ✓

Video created by W Neill

25 In an office there are twice as many females as males.

R4b

$\frac{1}{4}$ of the females wear glasses.

$\frac{3}{8}$ of the males wear glasses.

84 people in the office wear glasses.

Work out the number of people in the office.

[4 marks]

Answer _____

25 In an office there are twice as many females as males.

Video created by W Neill

$\frac{1}{4}$ of the females wear glasses.

$\frac{3}{8}$ of the males wear glasses.

84 people in the office wear glasses.

Work out the number of people in the office.

R4b

Male : Female

1/3 : 2/3

× of glasses

3/8

× of glasses

1/4

7/24 = wear glasses

7/24 = 84 people

1/24 = 12 people

× 24

24/24 = 288 people

3/8 of 1/3

3/8 × 1/3 = 3/24

1/4 of 2/3 =

1/4 × 2/3 = 2/12

3/24 + 2/12

3/24 + 4/24 = 7/24

24
× 12
48
240
288

Answer 288

Video created by W Neill

5 A coin lands on Tails 200 times.

The relative frequency of Tails is 0.4

Work out the number of times the coin was thrown.

[2 marks]

Answer _____

Video created by W Neill

5 A coin lands on Tails 200 times.

P26 The relative frequency of Tails is 0.4

R4b Work out the number of times the coin was thrown.

what is 1 ?

Total times

[2 marks]

$0.4 = 200$ times

$\frac{4}{10} = 200$ times

÷4 $\frac{1}{10} = 50$ times ÷4

$\frac{10}{10} = 500$ times

Answer 500 ✓

25 The Venn diagram shows some information about 150 students.

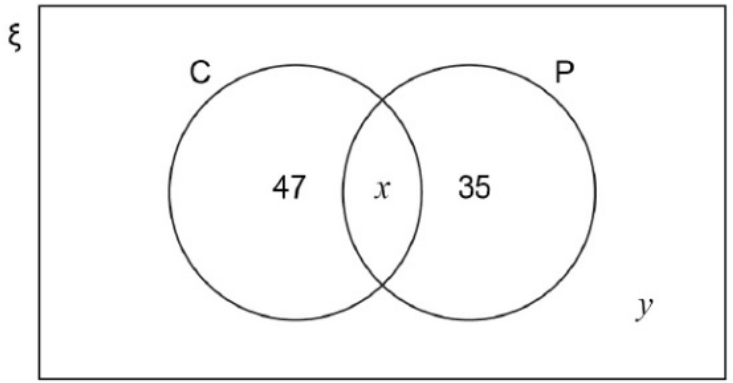
Video created by W Neill

P28
R4b

ξ = 150 students

C = students who study Chemistry

P = students who study Physics



The probability that a Physics student, chosen at random, also studies Chemistry is $\frac{5}{12}$

One of the 150 students is chosen at random.

Work out the probability that the student does **not** study either Chemistry or Physics.

[4 marks]

Answer _____

25 The Venn diagram shows some information about 150 students.

Video created by W Neill

P28
R4b

ξ = 150 students

C = students who study Chemistry

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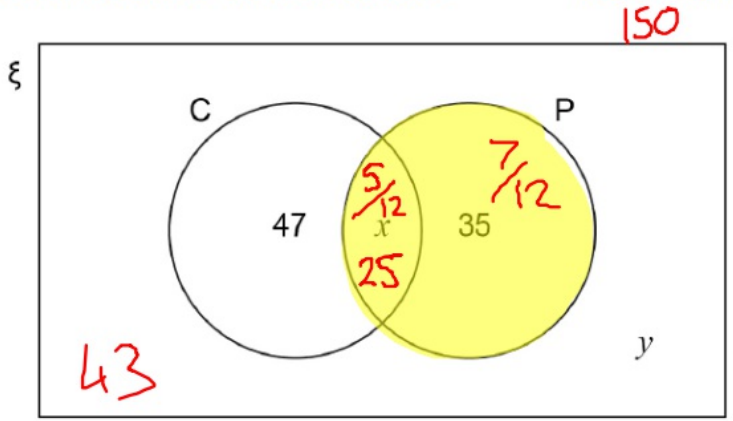

7/12 = 35

1/12 = 5

12/12 = 60

The probability that a Physics student, chosen at random, also studies Chemistry is $\frac{5}{12}$

One of the 150 students is chosen at random.

Work out the probability that the student does **not** study either Chemistry or Physics.

[4 marks]

Answer 43/150 ✓