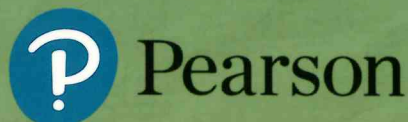
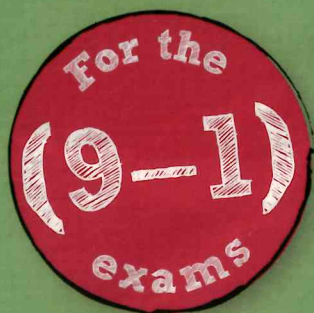


REVISE EDEXCEL GCSE (9-1)

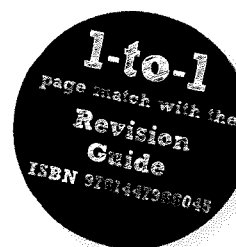
Mathematics

**REVISION
WORKBOOK**

Foundation



Contents



NUMBER

- 1 Place value
- 2 Negative numbers
- 3 Rounding numbers
- 4 Adding and subtracting
- 5 Multiplying and dividing
- 6 Decimals and place value
- 7 Operations on decimals
- 8 Squares, cubes and roots
- 9 Indices
- 10 Estimation
- 11 Factors, multiples and primes
- 12 HCF and LCM
- 13 Fractions
- 14 Operations on fractions
- 15 Mixed numbers
- 16 Calculator and number skills
- 17 Standard form 1
- 18 Standard form 2
- 19 Counting strategies
- 20 Problem-solving practice 1
- 21 Problem-solving practice 2

ALGEBRA

- 22 Collecting like terms
- 23 Simplifying expressions
- 24 Algebraic indices
- 25 Substitution
- 26 Formulae
- 27 Writing formulae
- 28 Expanding brackets
- 29 Factorising
- 30 Linear equations 1
- 31 Linear equations 2
- 32 Inequalities
- 33 Solving inequalities
- 34 Sequences 1
- 35 Sequences 2
- 36 Coordinates
- 37 Gradients of lines
- 38 Straight-line graphs 1
- 39 Straight-line graphs 2
- 40 Real-life graphs
- 41 Distance–time graphs
- 42 Rates of change
- 43 Expanding double brackets
- 44 Quadratic graphs
- 45 Using quadratic graphs
- 46 Factorising quadratics
- 47 Quadratic equations
- 48 Cubic and reciprocal graphs
- 49 Simultaneous equations
- 50 Rearranging formulae
- 51 Using algebra
- 52 Identities and proof
- 53 Problem-solving practice 1
- 54 Problem-solving practice 2

RATIO & PROPORTION

- 55 Percentages
- 56 Fractions, decimals and percentages
- 57 Percentage change 1
- 58 Percentage change 2
- 59 Ratio 1
- 60 Ratio 2
- 61 Metric units
- 62 Reverse percentages
- 63 Growth and decay
- 64 Speed
- 65 Density
- 66 Other compound measures
- 67 Proportion
- 68 Proportion and graphs
- 69 Problem-solving practice 1
- 70 Problem-solving practice 2

GEOMETRY & MEASURES

- 71 Symmetry
- 72 Quadrilaterals

- 73 Angles 1
- 74 Angles 2
- 75 Solving angle problems
- 76 Angles in polygons
- 77 Time and timetables
- 78 Reading scales
- 79 Perimeter and area
- 80 Area formulae
- 81 Solving area problems
- 82 3D shapes
- 83 Volumes of cuboids
- 84 Prisms
- 85 Units of area and volume
- 86 Translations
- 87 Reflections
- 88 Rotations
- 89 Enlargements
- 90 Pythagoras' theorem
- 91 Line segments
- 92 Trigonometry 1
- 93 Trigonometry 2
- 94 Solving trigonometry problems
- 95 Measuring and drawing angles
- 96 Measuring lines
- 97 Plans and elevations
- 98 Scale drawings and maps
- 99 Constructions 1
- 100 Constructions 2
- 101 Loci
- 102 Bearings
- 103 Circles
- 104 Area of a circle
- 105 Sectors of circles
- 106 Cylinders
- 107 Volumes of 3D shapes
- 108 Surface area
- 109 Similarity and congruence
- 110 Similar shapes
- 111 Congruent triangles
- 112 Vectors
- 113 Problem-solving practice 1
- 114 Problem-solving practice 2

PROBABILITY & STATISTICS

- 115 Two-way tables
- 116 Pictograms
- 117 Bar charts
- 118 Pie charts
- 119 Scatter graphs
- 120 Averages and range
- 121 Averages from tables 1
- 122 Averages from tables 2
- 123 Line graphs
- 124 Stem-and-leaf diagrams
- 125 Sampling
- 126 Stratified sampling
- 127 Comparing data
- 128 Probability 1
- 129 Probability 2
- 130 Relative frequency
- 131 Frequency and outcomes
- 132 Venn diagrams
- 133 Independent events
- 134 Problem-solving practice 1
- 135 Problem-solving practice 2

136 Paper 1 Practice exam paper

143 Answers

A small bit of small print

Edexcel publishes Sample Assessment Material and the Specification on its website. This is the official content and this book should be used in conjunction with it. The questions in 'Now try this' have been written to help you practise every topic in the book. Remember: the real exam questions may not look like this.

Paper 1

Practice exam paper

Foundation Tier

Time: 1 hour 30 minutes

Calculators may be used

Diagrams are NOT accurately drawn, unless otherwise indicated.

You must show all your working out.



1. Sandeep wrote down the temperature at different times on 1st January 2015.

Time of day	Temperature (°C)
3 am	-11
7 am	-5
Noon	7
4 pm	5
8 pm	-3
Midnight	-9

- (a) Write down:

(i) the highest temperature

(ii) the lowest temperature. (2 marks)

- (b) Work out the difference in the temperature between:

(i) 3 am and 7 am

(ii) noon and 8 pm. (2 marks)



2. Here is Kate's bank statement for the month of May up to the 30th May.

Date	Deposit (£)	Withdrawal (£)	Balance (£)
01/05/15			4240.00
06/05/15		300.00	3940.00
15/05/15	345.00		4285.00
19/05/15		450.00
27/05/15	1350.00	

Kate needs £5400 for a new garden patio.

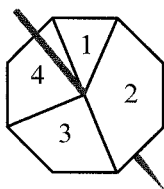
She needs to pay this money at the end of May.

Does Kate have enough money in her account to pay for the garden patio?

..... (3 marks)



3. The diagram shows a spinner as an eight-sided shape. The spinner sections are labelled 1 or 2 or 3 or 4. The spinner is spun once and lands on a number.



- (a) Which number is the most likely?

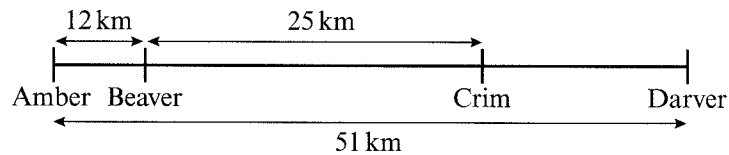
You must explain your answer.

..... (1 mark)

- (b) Write down the probability of the spinner landing on 1 or 2. (1 mark)
 Ravina spins the spinner once.
 Her spinner lands on 2.
 Anjali then spins the spinner once.
- (c) Has Anjali got a smaller chance, the same chance or a greater chance of getting 2 than Ravina had?
 You must explain your answer. (1 mark)



4. The diagram represents a straight road that joins four villages.



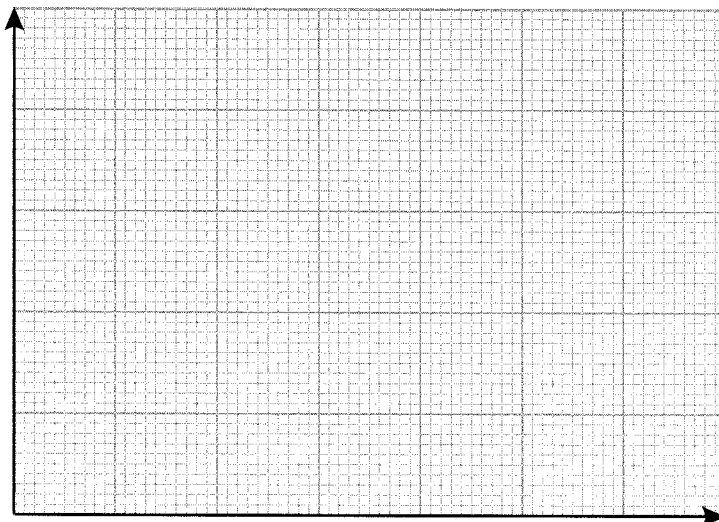
- (a) Work out the distance from Crim to Darver. (1 mark)
 Lewis walks from Amber to Crim.
 Harry walks from Beaver to Darver.
- (b) Who walks the furthest?
 You must explain your answer. (2 marks)



5. In a survey, 100 male voters and 100 female voters were asked which political party they were voting for in the next general election.
 The table below shows information about their replies.

	Conservatives	Labour	Liberal Democrats	Other
Female	28	32	24	16
Male	24	30	18	28

Represent this information in a suitable chart or diagram.



(4 marks)



6. Simplify:

- (a) $a + a + a + a$ (1 mark)
- (b) $5x + 8x - 3x$ (1 mark)
- (c) $5e - 6f + 7e + 7e - 2f + 4$ (2 marks)



7. Callum says, $25 - 10 \times 2$ is 30
 Len says, $25 - 10 \times 2$ is 5

- (a) Who is correct?
 Give a reason for your answer.
 (1 mark)
- (b) Work out the value of $(28 - 4) \div 4 + 10$
 (1 mark)
- (c) Put in brackets to make the following calculation correct.
 $16 - 4^2 + 3 = -3$ (1 mark)

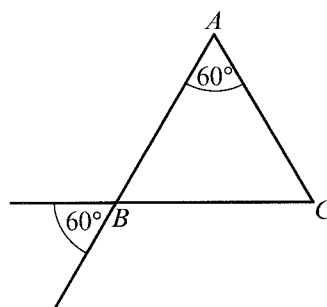


8. Here are two fractions, $\frac{3}{4}$ and $\frac{4}{5}$.
 Which is the smaller fraction?
 You must show all your working.

..... (3 marks)



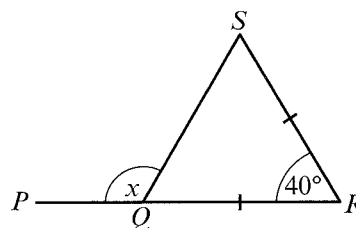
9. (a) Triangle ABC is an equilateral triangle.
 Explain why.



..... (2 marks)

PQR is a straight line.
 $SR = QR$.

(b) Work out the value of x .
 Give reasons for your answer.



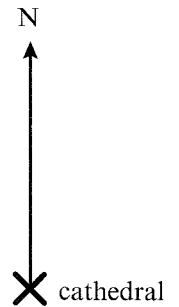
..... (3 marks)



10. The diagram shows part of a map.
It shows the positions of a statue and a cathedral.

The scale map is 1:10 000
Work out the real distance
between the statue and the cathedral.

Give your answers in metres.



..... (2 marks)



11. Factorise:

(a) $5x + 10$

..... (1 mark)

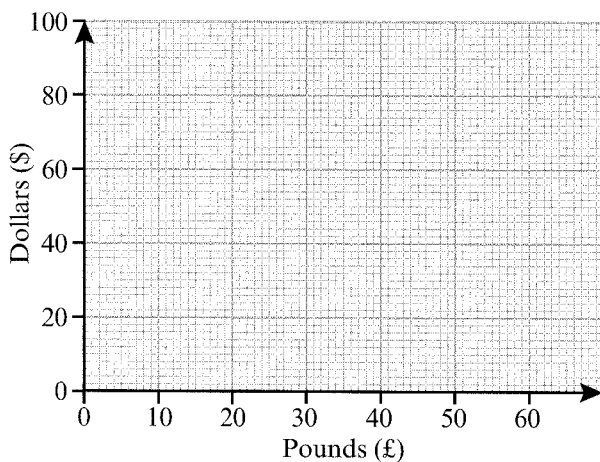
(b) $x^2 - 6x$

..... (1 mark)



12. Pavan comes back from the USA with some money.
Pavan needs to change some money from dollars (\$) to pounds (£).

$\pounds 1 = \$1.50$



- (a) On the grid, draw a conversion graph Pavan can use to change between pounds and dollars.

(2 marks)

Pavan changes 1000 dollars into pounds.

- (b) Use your graph to change 1000 dollars into pounds.

..... (2 marks)



13. There are $2\frac{1}{2}$ litres of water in a jug.
Laura is going to pour the water into some glasses.
She will fill each glass with 225 ml of water.
Work out the greatest number of glasses she can fill.

..... (4 marks)



14. Gavin bought his motorbike for £15 000
The motorbike depreciated by 10% the first year.
The motorbike depreciated by 15% the second year.
Show that the value of the motorbike falls below £11 500 after two years.
You must show all your working.

(3 marks)

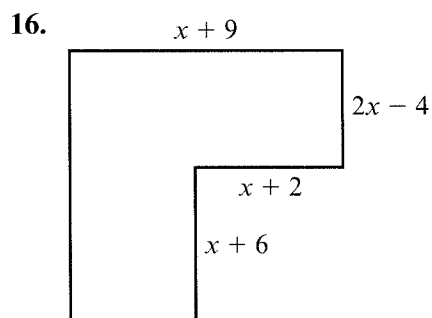


15. This is some information about a class.
There are 40 students in a class.
16 of the students study Latin.
19 of the students study Spanish.
7 of the students study both Latin and Spanish.
(a) Draw a Venn diagram to represent this information.

(4 marks)

- (b) Show that 30% of the students do **not** study Latin or Spanish.

(2 marks)



- All the measurements are in centimetres.
The perimeter of the shape is 94 cm.
Work out the value of x .
You must show your working.

..... (5 marks)



17. Amy shares a bag of sweets with her friends.
 She gives Beth $\frac{2}{5}$ of the sweets.
 She gives Carl $\frac{3}{10}$ of the sweets.
 She has twelve sweets left.
 How many sweets does Amy give to Beth?

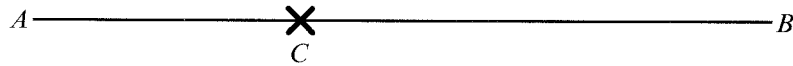
..... (4 marks)



18. Here are the first four terms in an arithmetic sequence.
 7 11 15 19
 Is the number 127 a term in this arithmetic sequence?
 You must give a reason for your answer.

..... (3 marks)

19. A , C and B are three places on a map.
 ACB is a straight line.
 Construct the perpendicular to the line AB at the point C .
 You must leave all your construction lines.



..... (2 marks)



20. (a) (i) Write 50 000 in standard form.

.....

- (ii) Write 9.6×10^{-5} as an ordinary number.

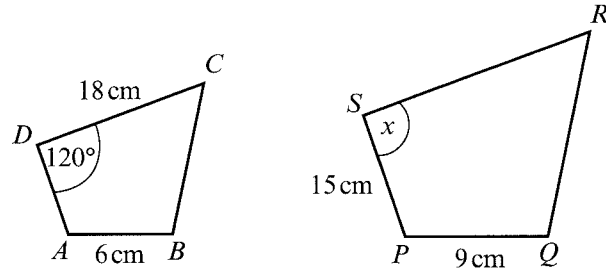
..... (2 marks)

- (b) Work out the value of $(5 \times 10^4) \times (3 \times 10^6)$.
 Give your answer in standard form.

..... (2 marks)



21. Shapes $ABCD$ and $PQRS$ are mathematically similar.



(a) Write down the size of the angle marked x (1 mark)

(b) Work out the length of AD .
..... (2 marks)

(c) Work out the length of RS .
..... (2 marks)

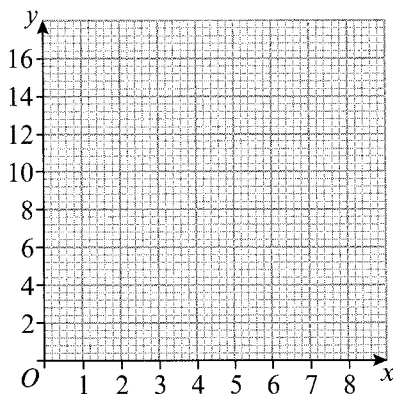


22. (a) Complete the table of values for $y = \frac{8}{x}$

x	0.5	1	2	4	5	8
y		8			1.6	

(2 marks)

(b) Draw the graph of $y = \frac{8}{x}$



(2 marks)

TOTAL FOR PAPER = 80 MARKS

Practice exam papers for Paper 2 and Paper 3 are available to download free from the Pearson website. Scan this QR code or visit <http://activetea.ch/1MpXwRb>



Answers

NUMBER

1. Place value

- 1 (a) 9351
 (b) Four thousand, one hundred and ninety six
 (c) 5000

2

ten thousands	thousands	hundreds	tens	units
1	2	0	6	0

- 3 (a) 49, 127, 146, 165, 169
 (b) 7028, 7249, 7429, 7924, 7942
 4 (a) £62 400, £63 004, £63 452, £63 593, £65 601
 (b) 36p, 63p, £1.02, £1.12, £1.20
 5 He is incorrect
 6 110 paper plates

2. Negative numbers

- 1 (a) -11, -4, 0, 4, 6
 (b) (i) -2 (ii) -3 (iii) -10 (iv) -16
 2 (i) -14 (ii) -7 (iii) 24 (iv) 7
 3 (a) -2°C (b) -7°C (c) -15°C (d) 22°C
 4 (a) 50°C
 (b) New Delhi
 (c) No, answer is 9°C

3. Rounding numbers

- 1 (a) 27 000 (b) 6500 (c) 87 540
 2 (a) 9 (b) 8.6 (c) 8.64
 3 (a) 0.003 (b) 0.0035 (c) 0.00347
 4 (a) 40 000 (b) 39 000 (c) 38 700
 5 (a) 20.4 (b) 300 g (c) 170 (d) 130 g
 6 No, correct answer is 0.0235

4. Adding and subtracting

- 1 (a) 1023 (b) 577
 2 (a) 8178 (b) 177
 3 £11.40
 4 41
 5 He is not correct. Coffee costs £2.06

5. Multiplying and dividing

- 1 (a) 1909 (b) 243
 2 (a) 112 (b) 196
 3 756
 4 (a) 43 290 (b) 34
 5 (a) 5 boxes (b) 9 boxes
 6 (a) 125 chocolates (b) 19 chocolates

6. Decimals and place value

- 1 (a) $\frac{7}{10}$ (b) $\frac{8}{100}$ (c) $\frac{4}{1000}$
 2 1.4, 3.2, 6.2, 6.4, 12.8
 3 0.05, 0.6, 0.61, 0.611, 0.613
 4 0.7, 0.725, 0.73, 0.778, 0.78
 5 (a) 2451 (b) 24.51 (c) 4.3
 6 He is incorrect because $435.2 \div 13.6 = 32$

7. Operations on decimals

- 1 (a) 14.63 (b) 75.36 (c) 117.12
 (d) 0.0329 (e) 13.9 (f) 63
 2 £282.60
 3 £15.40
 4 £20.94

8. Squares, cubes and roots

- 1 (a) 16 (b) 8 (c) 9
 (d) 8 (e) 4 (f) 2
 (g) 3 (h) -4 (i) -5
 2 (a) 81 (b) 125 (c) 12 (d) 6
 3 52
 4 (a) 36 or 49 (b) 8 (c) 49

- 5 No because $2 \times 2 \times 2 = 8$
 6 No because $16 + 4 + 1 = 21$ which is odd

9. Indices

- 1 (a) 4^2 (b) 4^5
 2 (a) 5^9 (b) 5^3 (c) 5^4 (d) 5^{12}
 3 (a) 9^{-1} (b) 9^{-4}
 4 (a) 3^3 (b) 3^2 (c) 3^8 (d) 3^6
 5 (a) 1 (b) $\frac{1}{7}$ (c) $\frac{1}{49}$ (d) $\frac{1}{64}$
 (e) $\frac{27}{64}$ (f) $\frac{25}{16}$
 6 $x = 8$

10. Estimation

- 1 (a) 14 000 (b) 6 (c) 125 000
 2 125
 3 7200
 4 17 500
 5 750
 6 36 000
 7 (a) 432 cm² (b) Underestimate

11. Factors, multiples and primes

- 1 (a) $1 \times 36, 2 \times 18, 3 \times 12, 4 \times 9, 6 \times 6$
 (b) 7, 14, 21, 28, 35, 42, 49, 56, 63, 70
 2 (a) factor (b) multiple
 3 41, 43, 47
 4 (a) 2 or 6 (b) 21 or 49 (c) 6 and 8
 5 $14 + 7 + 1$
 6 (a) 2×3^3 (b) $2^5 \times 3$ (c) $2 \times 3^2 \times 7$ (d) $2^2 \times 3^2 \times 7$

12. HCF and LCM

- 1 (a) 12 (b) 60
 2 (a) (i) $2 \times 3^2 \times 5$ (ii) $2 \times 3 \times 5 \times 7$
 (b) 30 (c) 630
 3 (a) 12 (b) 144

13. Fractions

1

- 2 (a) $\frac{1}{2}$ (b) $\frac{2}{3}$ (c) $\frac{7}{24}$ (d) $\frac{2}{7}$
 3 (a) $\frac{3}{4}$ (b) $\frac{3}{4}$
 4 (a) £45 (b) £64 (c) £140 (d) £150
 5 £17.50
 6 £66

14. Operations on fractions

- 1 (a) $\frac{11}{15}$ (b) $\frac{11}{20}$ (c) $\frac{69}{56}$ (d) $-\frac{1}{63}$
 2 (a) $\frac{1}{6}$ (b) $\frac{15}{44}$ (c) $\frac{40}{15}$ (d) $\frac{18}{12}$
 3 $\frac{4}{15}$
 4 (a) $\frac{8}{35}$ (b) 48 litres

15. Mixed numbers

- 1 (a) $6\frac{11}{20}$ (b) $2\frac{1}{10}$
 2 (a) $\frac{23}{6}$ (b) $\frac{10}{3}$
 3 (a) 9 (b) $\frac{48}{13}$
 4 $\frac{71}{12}$ hours
 5 $\frac{19}{18}$ litres
 6 12

16. Calculator and number skills

- 1 (a) 15 (b) 95 (c) 18 (d) 81
 2 (a) 6 (b) 1 (c) 6
 3 1.751592357

129. Probability 2

- 5 (a) 0.7 (b) 0.3
 6 0.21
 7 (a) 0 (b) 0.21
 8 (a) 0.68 (b) 0.08

130. Relative frequency

- 1 (a) $\frac{53}{302}$ (b) $\frac{140}{302}$
 2 (a) $\frac{1}{5}$ (b) $\frac{17}{50}$ (c) $\frac{41}{50}$
 3 (a) $\frac{143}{202} = 0.71$
 (b) The sample is large so the estimate is accurate

131. Frequency and outcomes

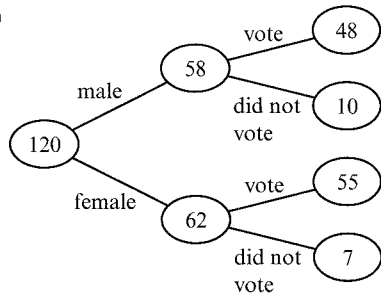
- 1 (C, P) (C, G) (C, B) (L, P) (L, G) (L, B) (V, P) (V, G) (V, B)
 Probability = $\frac{1}{9}$

- 2 (a) $\frac{1}{3}$

Neil's card	X	X	X	Y	Y	Y	Z	Z	Z
Tej's card	X	Y	Z	X	Y	Z	X	Y	Z

- (c) $\frac{1}{3}$ (d) $\frac{2}{3}$

- 3 (a)



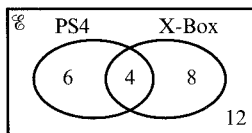
- (b) $\frac{10}{58} = \frac{5}{29}$

- 4 35

132. Venn diagrams

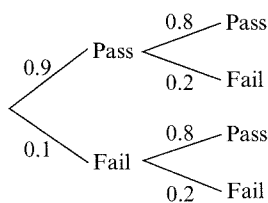
- 1 (a) (i) $x = 15$ (ii) $x = 9$ (iii) $x = 9$
 (b) (i) Students who only study maths
 (ii) Students who don't study French or German
 (iii) Students who study bot DT and ICT

- 2 (a) $\frac{1}{8}$ (b) $\frac{11}{40}$ (c) $\frac{21}{40}$
 3 (a) $\frac{12}{30}$ (b) $\frac{12}{30}$ (c) $\frac{14}{30}$



133. Independent events

- 1 (a) $\frac{9}{100}$ (b) $\frac{49}{100}$ (c) $\frac{42}{100}$
 2 (a) Each missing branch has same probability, 0.3
 (b) 0.42
 3 (a) Nav Asha (b) 0.26



134. Problem-solving practice 1

1 (a)

	French	German	Spanish	Total
Female	15	11	13	39
Male	16	17	8	41
Total	31	28	21	80

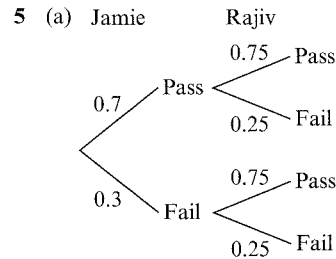
- (b) $\frac{31}{80}$

- 2 (a) (i) 0.75 (ii) 0.2 (b) 30
 3 The median height of Park A is greater the median height in Park B
 The range of Park B is greater than Park A

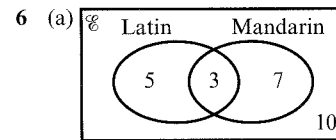
135. Problem-solving practice 2

4

Favourite snack in year 11	Frequency	Angle
Burger	40	80°
Chips	90	180°
Hot dog	20	40°
Kebab	30	60°
Total	180	



- (b) $\frac{2}{5}$



- (b) $\frac{7}{25}$

- (c) $\frac{12}{25}$

MATHS PRACTICE EXAM PAPERS

Paper 1F

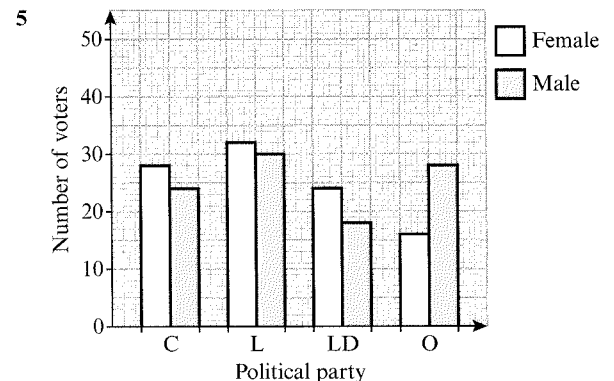
- 1 (a) (i) 7°C (ii) -11°C
 (b) (i) 6°C (ii) 10°C

2

Date	Deposit	Withdrawal (£)	Balance (£)
01/05/15			4240.00
06/05/15		300.00	3940.00
15/05/15	345.00		4285.00
19/05/15		450.00	3835.00
27/05/15	1350.00		5185.00

Kate does not have enough money for the garden patio

- 3 (a) 2 (b) 0.5
 (c) Same chance because the probabilities are equal
 4 (a) 14 km
 (b) Harry because he walks 39 km but Lewis walks 37 km



- 6 (a) 4a (b) 10x (c) $19e - 8f + 4$
 7 (a) $25 - (10 \times 2) = 25 - 20 = 5$ Len is correct
 (b) 16 (c) $16 - (4^2 + 3) = -3$

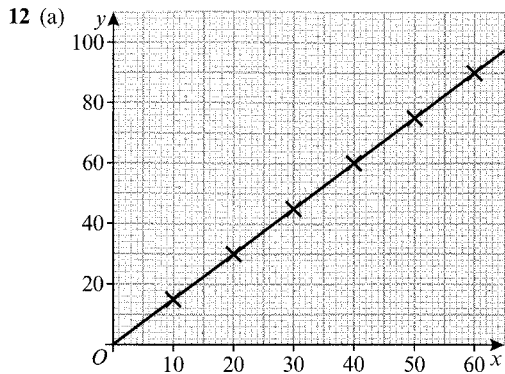
8 $\frac{3}{4}$

9 (a) Angle ABC is 60° and angle ACB is 60° . Hence, all the angles in the triangle are 60°

(b) 110° because angles on a straight line add up to 180°

10 780 m

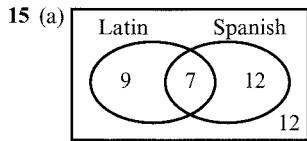
11 (a) $5(x + 2)$ (b) $x(x - 6)$



(b) £670

13 11 glasses

14 $\pounds 11\,475 < \pounds 11\,500$



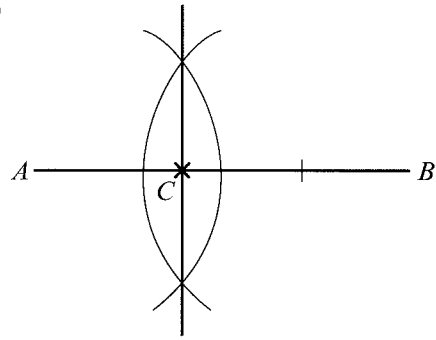
(b) $\frac{12}{40} \times 100 = 30\%$

16 9

17 16

18 127 is a term in this arithmetic sequence

19



20 (a) (i) 5×10^4 (ii) 0.000096

(b) 1.5×10^{11}

21 (a) 120° (b) 10 cm (c) 27 cm

22 (a)

x	0.5	1	2	4	5	8
y	16	8	4	2	1.6	1

