Paper 2 and Paper 3 Predictions

Edexcel - Foundation

Very High Chance

Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You will need a calculator

Guidance

1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this test

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Question	Topic	Video number
1	Multiples and Factors	220, 216
2	Prime Numbers	225
3	Pictograms	161, 162
4	Coordinates	84
5	Bar Charts	147, 148
6	Symmetry	316, 317
7	Angle Facts	35, 30, 34, 39
8	Units	347, 349
9	Mean, Mode, Median, Range	56, 50, 53, 57
10	Collecting Like Terms	9
11	Listing Outcomes	253
12	Use of a Calculator	352
13	Volume of a Cuboid	355
14	Negative Numbers	205-209
15	Angles in a Triangle	37
16	Angles in Polygons	32
17	Standard Form	300, 302, 303
18	Negative Indices	175
19	Recipes	256
20	Percentages of Amounts (Calculator)	235
21	Translations	325. 326
22	Reflections	272, 273
23	Rotations	275
24	Enlargements	104. 105. 107
25	Volume of a Prism	356
26	Frequency Trees	376
27	Constructions	72, 78, 83
28	Two-way Tables	319
29	Factorising	117
30	Laws of Indices	174

Question	Topic	Video number
31	Venn Diagrams	380
32	Tree Diagrams	252
33	Currency	214a
34	Angles in Parallel Lines	25
35	Speed, Distance, Time	299
36	Best Buys	210
37	LCM, HCF	223, 224
38	Ratio	270, 271
39	nth Term	288, 289
40	Drawing Linear Graphs	186
41	Stem-and-Leaf	169, 170
42	Estimated Mean	55
43	Trigonometry	329, 330, 331
44	Compound Interest	236
45	Reverse Percentages	240
46	Simultaneous Equations	295
47	Factorising and Solving Quadratics	118, 119, 120, 266
48	Bearings	26, 27

1. Here is a list of numbers

6 10 11 16 24 30 40

(a) Write down a multiple of 20

40

.....

(1)

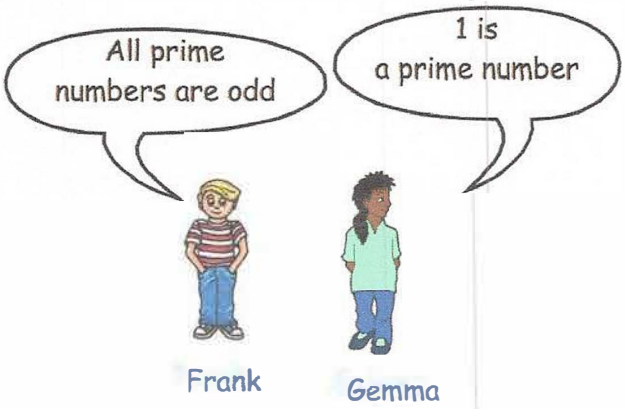
(b) Write down a factor of 12

6

.....

(1)

2.



Give a reason why each child is wrong.

Frank: 2 is prime and also even.

Gemma: All primes have 2 factors (one and itself)

(2)

3. The pictogram shows the books Claire read last year.

Key ○ represents 8 books

Romance	○ ○	16
Crime	○ ◁	10
Horror	○ ◁	12
Factual	◔	6

(a) How many romance books did Claire read?

16

(1)

(b) How many horror books did Claire read?

12

(1)

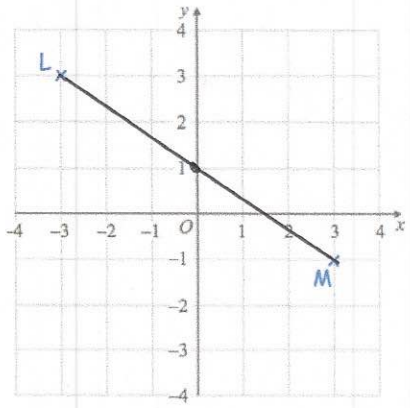
(c) How many books in total did Claire read last year?

16 + 10 + 12 + 6

44

(2)

4.



(a) Write down the coordinates of L.

(-3 , 3)

(1)

(b) Write down the coordinates of M.

(3 , -1)

(1)

(c) Find the coordinates of the midpoint of LM.

(0 , 1)

(2)

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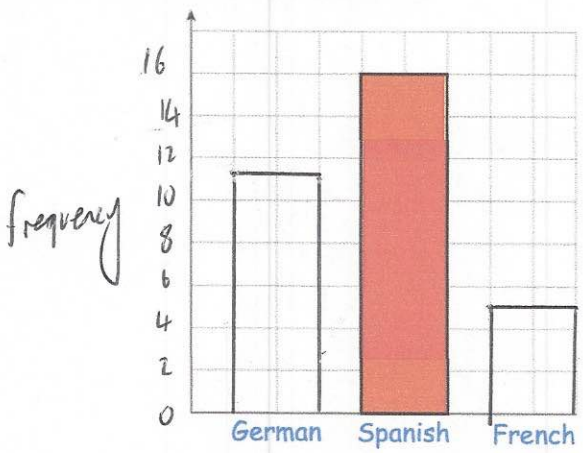
5. Ms Bell asked the 32 students in her tutor group which language they study.
Each student studies one language only.



11 + 5 = 16

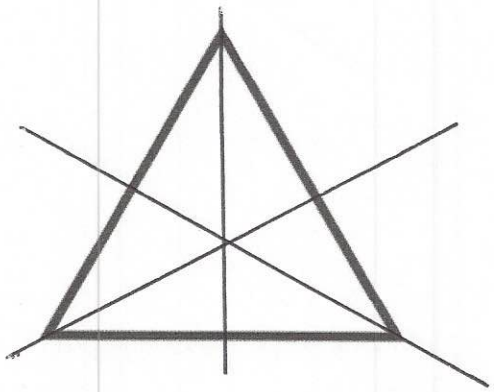
11 - 5 = 6

Half of the students in the tutor group study Spanish.
Six more students study German than French.

Complete the bar chart.

(4)

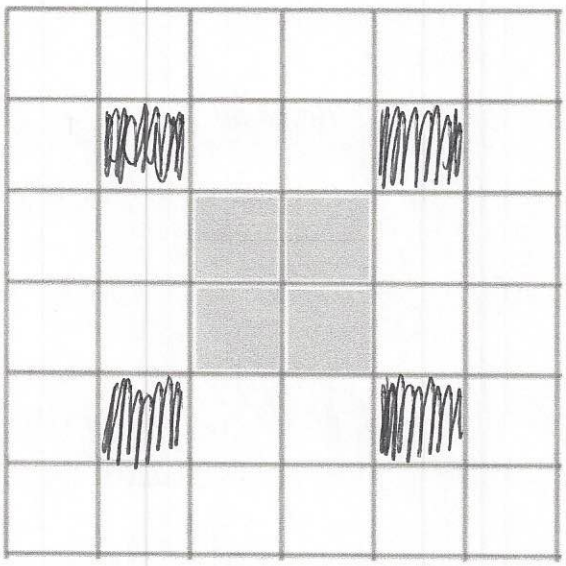
6. (a) An equilateral triangle is drawn below.



Draw all the lines of symmetry.

(2)

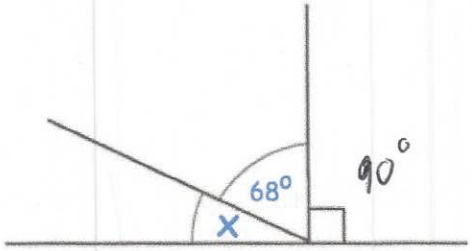
(b) Four small squares are shaded in the diagram below.



Shade in four more small squares to make a pattern with rotational symmetry order 4.

(2)

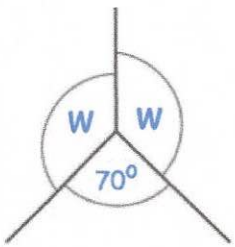
7.



(a) Calculate angle x.

22 °

(1)



360 - 70 = 290

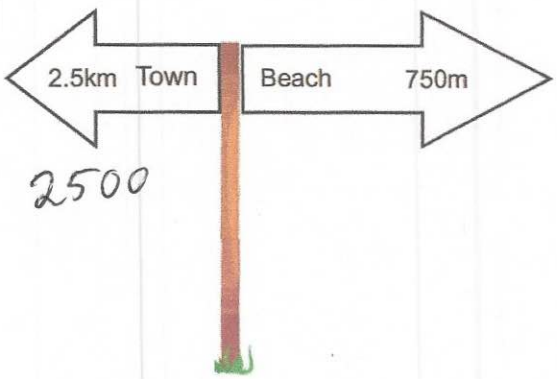
290 ÷ 2

(b) Calculate angle w.

145 °

(1)

8.



2500

Work out the distance between the town and the beach.
State your units.

2500 + 750

3250 m

or 3.25 km

(3)

9. A football team played six games.

Here are the number of goals they scored in each game:

6 0 3 2 2 5

(a) Work out the median number of goals scored.

0 0 2 3 5 6

2.5

(2)

(b) Work out the mean number of goals scored.

6 + 0 + 3 + 2 + 2 + 5 = 18

18 ÷ 6 = 3

3

(2)

The football team play one more game.
The mean number of goals scored increases to 4.

(c) Work out the number of goals scored in the seventh game.

7 x 4 = 28 (total in 7 games)

28 - 18

10

(2)

---

10. (a) Simplify s + s + s + s - s

3s

(1)

(b) Simplify 5c – 3s + 3c + 7s

8c + 4s

(2)

(c) Simplify $8a + 3c - 5c + 3a$

$11a - 2c$

(2)

(d) Simplify $3a + 2w - 5a - 9w$

$-2a - 7w$

(2)

(e) Simplify $3y^2 + 2w^2 + y^2 - w^2$

$4y^2 + w^2$

(2)

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11. Molly visits a restaurant with her friends.
This is a menu.

Starters	Mains
Soup	Chicken
Prawn Cocktail	Beef
Melon	Pizza

Molly chooses one starter and one main.

List all the possible combinations.

SC SB SP

PC PB PP

MC MB MP

(2)

12. Calculate the value of

$$\frac{13.2 - 1.29}{39.1 - 44.8}$$

(a) Write down your full calculator display.

-2.089473684

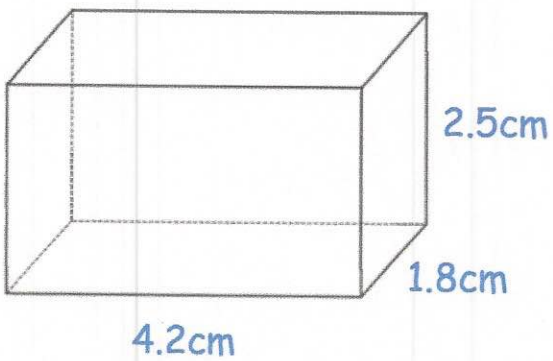
(1)

(b) Give your answer to three significant figures.

-2.09

(1)

13.



Work out the volume of this cuboid.
State the units of your answer.

$4.2 \times 1.8 \times 2.5$

$18.9\ cm^3$

(2)

14. The temperature, in °C, at midnight at a weather station on 5 days was recorded

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Temperature	-4	1	-6	1	-2

(a) What fraction of the days had a temperature below 0°C?

$\frac{3}{5}$

(1)

(b) What is the range of the temperatures?

$1 - -6 = 7°C$

7 °C

(1)

(c) What is the mean of the temperatures recorded?

$(-4) + (1) + (-6) + (1) + (-2) = -10$

$-10 \div 5$

-2 °C

(2)

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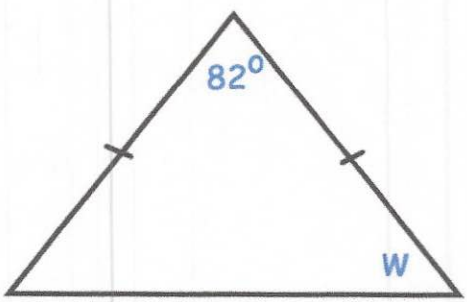
15. Shown below is an isosceles triangle.



$180 - 82 = 98$

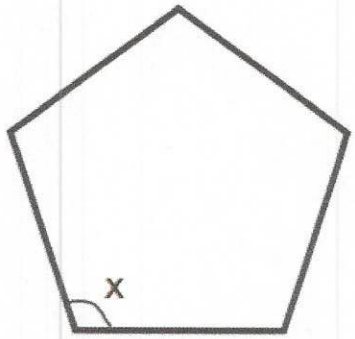
$98 \div 2 = 49$

Work out the size of the angle marked w.

49 °

(2)

16. Shown below is a regular pentagon.

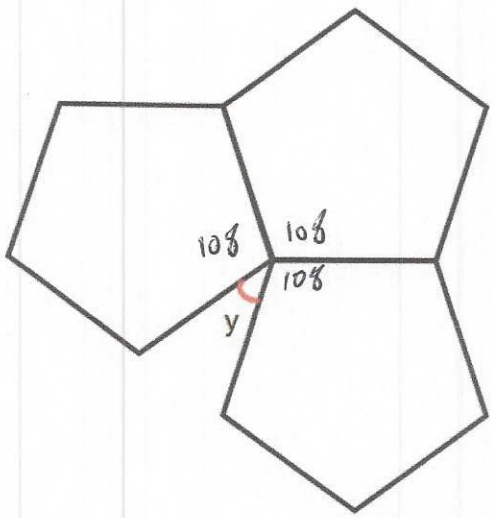


$540 \div 5$

(a) Find the size of each interior angle.

x = 108 °

(2)



Three identical regular pentagons are joined as shown above.

(b) Work out the size of angle y.

$108 + 108 + 108 = 324$

$360 - 324 = 36$

y = 36 °

(2)

17. Write the following numbers in standard form.

(a) 40000

4×10^4

.....

(1)

(b) 5600

5.6×10^3

.....

(1)

(c) 41200000

4.12×10^7

.....

(1)

(d) 0.00000008

8×10^{-8}

.....

(1)

---

18. (a) Write as a fraction.

5^{-3}

$\frac{1}{125}$

.....

(1)

(b) Work out

25^0

1

.....

(1)

19. Shown below is a recipe for Stuffed Turkey.

Stuffed Turkey

Serves 4

Turkey	500g
Red Onion	1
Garlic Cloves	2
Chestnut Mushrooms	150g
Spinach	140g
Chicken Stock	300ml

Mary wants to make Stuffed Turkey for 10 people.
How much of each ingredient is needed?
Include units.

8 → 2
1000g → 250g
2 → ½
4 → 1
300g → 75
280g → 70
600ml → 150

Turkey: 1·25 kg

Red Onions: 2½

Garlic Cloves: 5

Chestnut Mushrooms: 375g

Spinach: 350g

Chicken Stock: 750ml

(5)

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20 The table gives information about the number of people voting for each party at an election.

Party	Number of Votes
Gold Party	12598
Pink Party	9112
Brown Party	20059
Purple Party	4466
Total	46235

There are 52852 people who can vote
The target was that 88% of people would vote.
Was the target met?

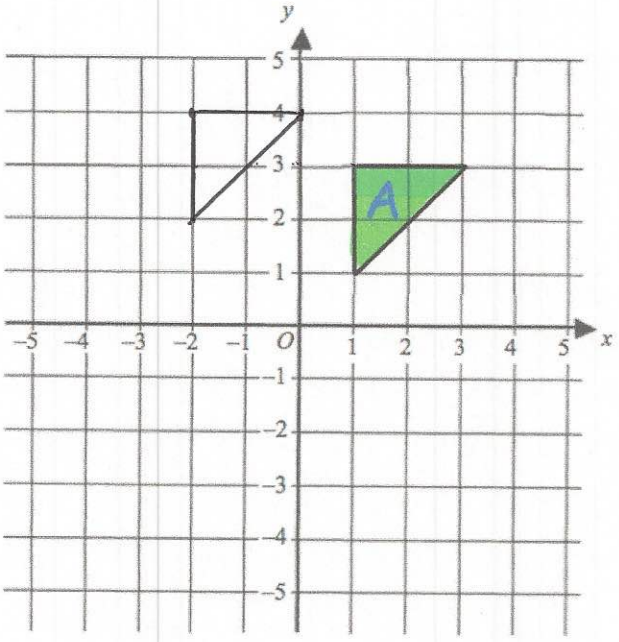
88% of 52852 = 46509.76

(46509 or 46510)

No the target was not met

(3)

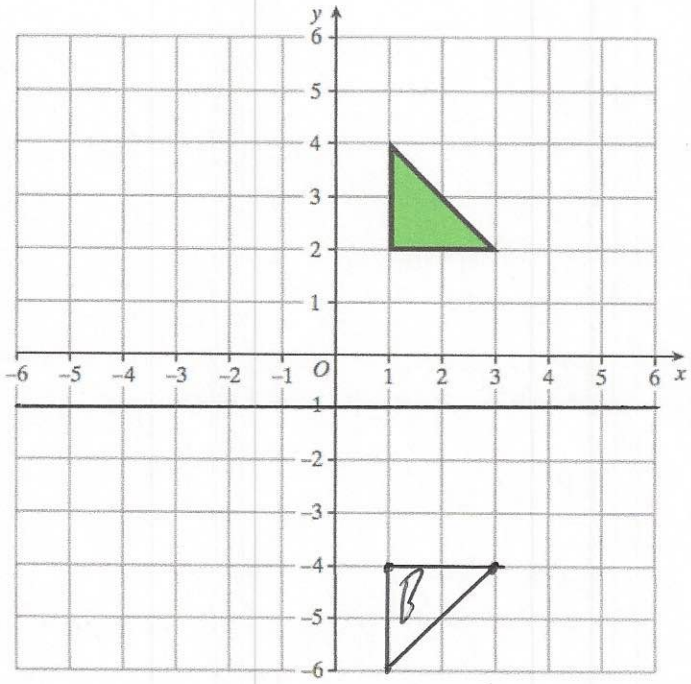
21.



Translate triangle A by the vector $\begin{pmatrix} -3 \\ 1 \end{pmatrix}$ left up

(2)

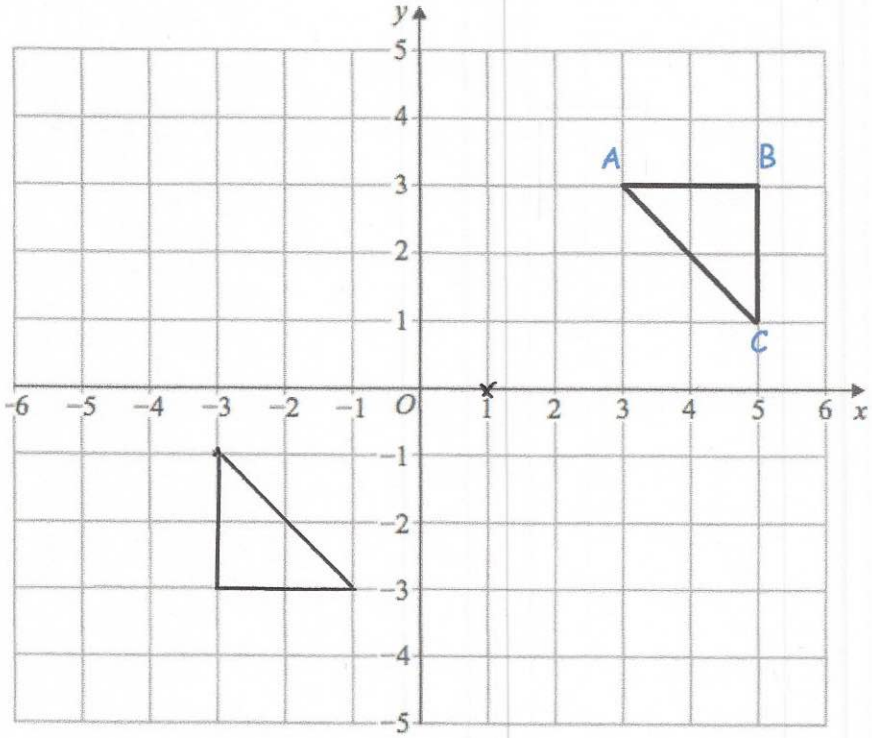
22.



Reflect the triangle in the line y = –1
Label the new triangle B.

(2)

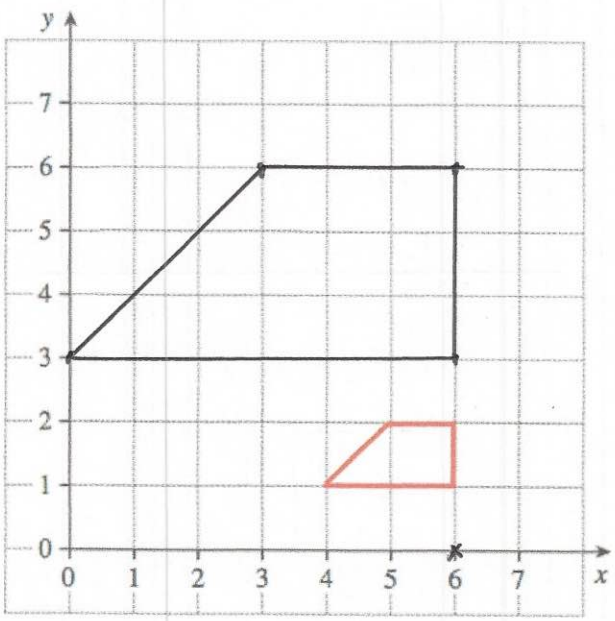
23.



Rotate triangle ABC 180° about centre (1, 0)

(3)

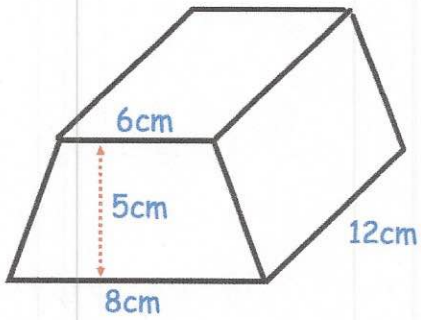
24.



Enlarge the trapezium by scale factor 3, centre (6, 0).

(2)

25. Shown below is a trapezoid prism.



Find the volume of the prism.

Area of front $\frac{1}{2}(6+8) \times 5 = 35$

volume 35×12

420 ..... cm^3

(4)

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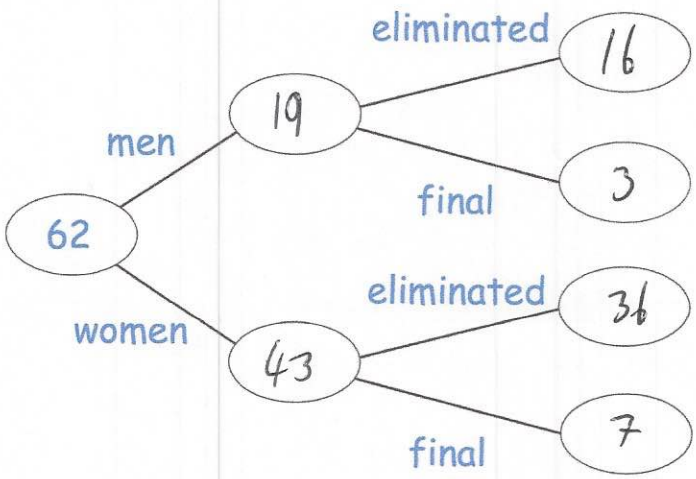
26. 62 people took part in a talent show
43 of the people were women.
10 people made it through to the final and the rest were eliminated.
3 men made it through to the final



a) Complete the frequency tree

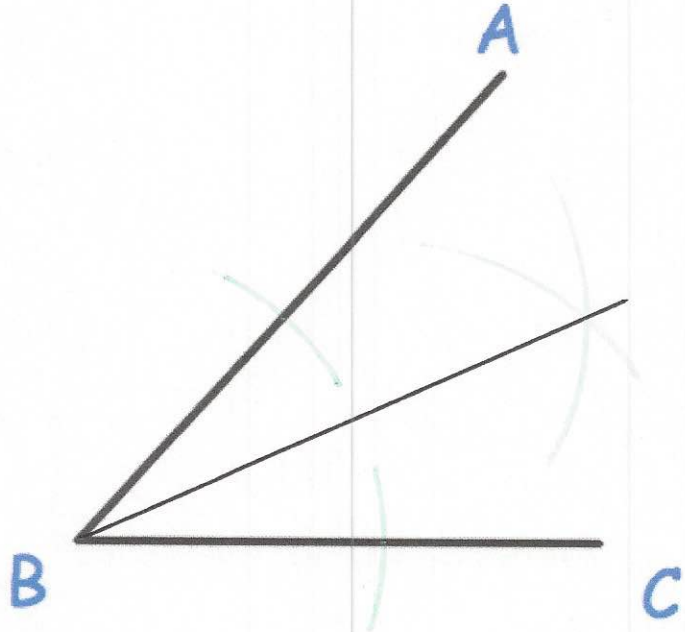
(2)

b) What fraction of the men made it through to the final?

$\frac{3}{19}$ .....

(2)

27. Using ruler and compasses, construct the bisector of angle ABC.



(2)

28. On a particular day, 98 adults visit a leisure centre.

Some are going to the gym.
Some are going to play tennis.
Some are going to play badminton.
The rest are going swimming.

51 people are male.
21 out of the 40 going to the gym are male.
19 males and 7 females are going swimming.
7 out of the 20 people playing badminton are male.
Twice as many females play tennis than males.

How many women play tennis?

	m	f	total
gym	21	19	40
tennis	4	8	12
badminton	7	13	20
swimming	19	7	26
total	51	47	98

8

.....

(2)

29. Factorise completely

$24x^2 + 20x$

$4x(6x + 5)$

(2)

30. (a) Simplify

$m^5 \times m^3$

m^8

(1)

(b) Simplify

$m^8 \div m^2$

m^6

(1)

(c) Simplify

$(m^3)^2$

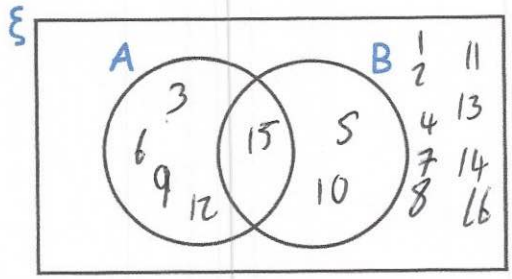
m^6

(1)

31. $\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16\}$

A = multiples of 3
B = multiples of 5

(a) Complete the Venn diagram



(3)

One of the numbers is selected at random.

(b) Write down $P(A \cap B)$

1/16

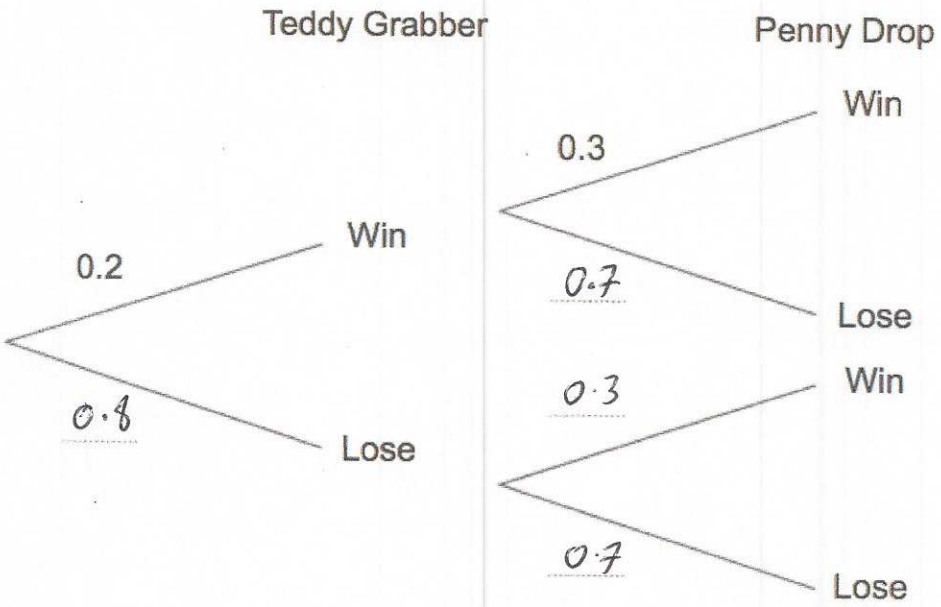
(1)

32. James goes to an arcade.

He has one go on the Teddy Grabber.
He has one go on the Penny Drop.

The probability that he wins on the Teddy Grabber is 0.2.
The probability that he wins on the Penny Drop is 0.3.

(a) Complete the tree diagram.



(2)

(b) Work out the probability that James wins on the Teddy Grabber and he also wins on the Penny Drop.

$0.2 \times 0.3 = 0.06$

.....

(2)

33. A coat in London costs £60.
The same coat in Dublin costs €105.60.
The exchange rate is £1 = €1.65.

In which city is the coat cheaper and by how much?

£60 × 1.65 = €99

In London by €6.60

or

105.60 ÷ 1.65 = £64

In London by £4

(3)

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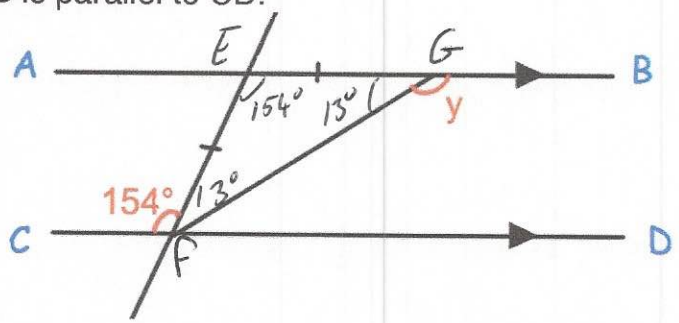
34. AB is parallel to CD.



Work out the size of angle y.
Give reasons for your answer.

∠CFE = ∠FEG (alternate angles are equal)

ΔEFG is isosceles, so ∠EFG = ∠EGF = 13°

∠EGF & ∠BGF are in a straight line, so add up to 180°

∠BGF = 167°

167 .....°

(4)

35. A car travels 240 kilometres in 3 hours 15 minutes.

Calculate the average speed, in km/h, of the car.

$S = \frac{d}{t} = \frac{240}{3.25} = 73.846$

73.846 km/h

(3)

---

36. A supermarket sells Baked Beans in two different size cans.

215g

40p

395g

74p

Which size can is the best value for money?
You must show all your working.

$40 \div 215 = 0.186p$ per gram

$74 \div 395 = 0.187p$ per gram

The 215g can is better value

(4)

37. Helen thinks of two numbers.
The Highest Common Factor (HCF) of her two numbers is 5
The Lowest Common Multiple (LCM) of her two numbers is a multiple of 12

Write down two possible numbers that Helen could be thinking of.

5 and 120 etc.
5 and 60

(2)

---

38. At a rugby match, the ratio of children to adults is 2 : 3
There are 6000 children in the crowd.
Each adult ticket costs £8
Each child ticket costs a quarter of the adult ticket. £2

Work out the total money made from ticket sales.

$80 \div 2 = 40$
$40 \times 3 = 120$ adults
$8 \times 120 = £960$
$2 \times 80 = £160$
$960 + 160 = 1120$

£ 1120

(4)

---

39. The first 5 terms in a number sequence are

1 4 7 10 13 ... ...

(a) Work out the nth term of the sequence.

$3n - 2$

(2)

(b) Find the 50th term of the sequence.

$3 \times 50 - 2$

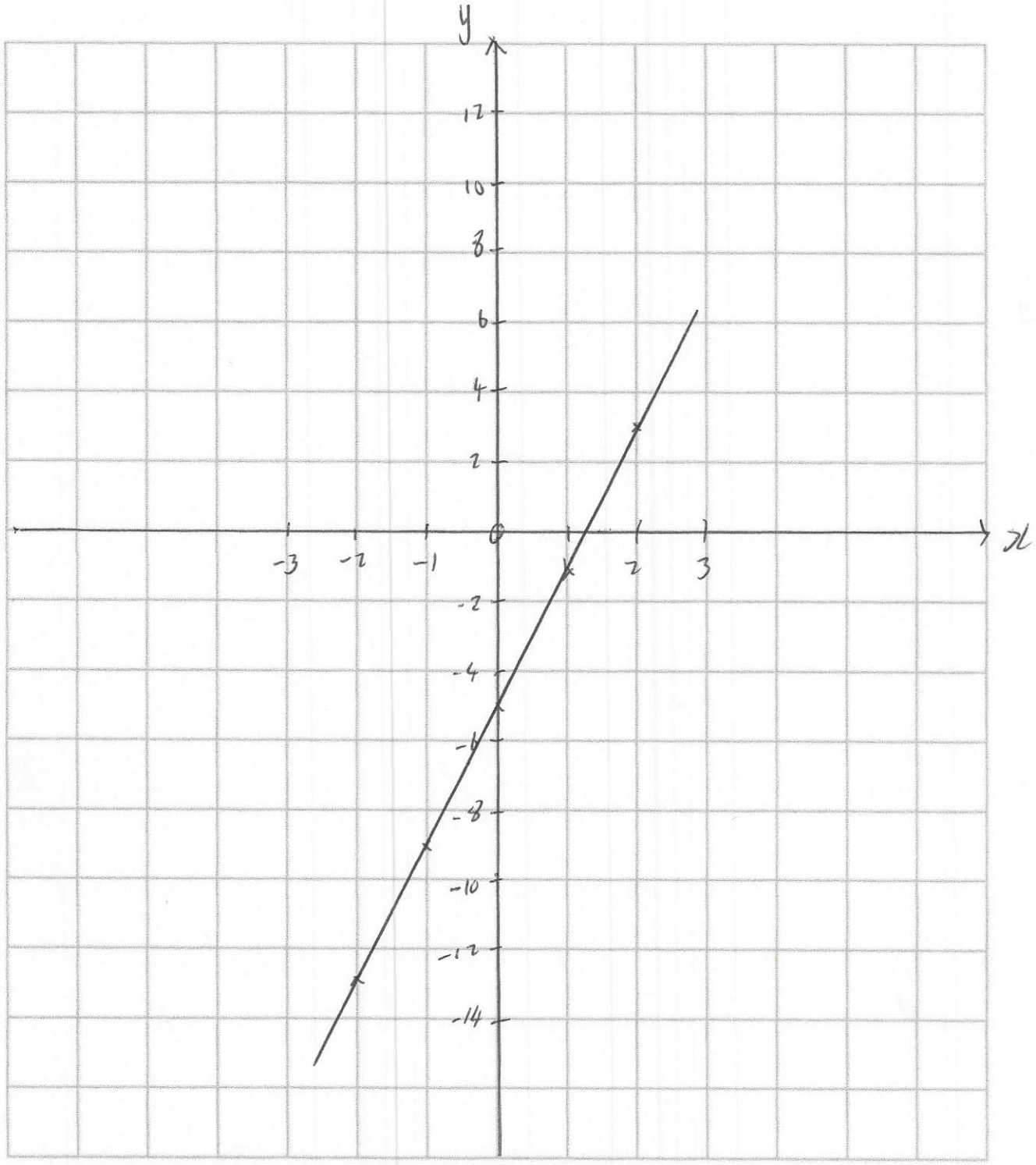
148

(2)

40.

06. On the grid, draw $y = 4x - 5$ for values of x from –2 to 2.

x	-2	-1	0	1	2
y	-13	-9	-5	-1	3



(4)

41. Helen plays darts.

Here are her scores.

55	23	48	29	41	47	36
35	40	35	44	34	35	

(a) Draw an ordered stem and leaf diagram to show her scores.

key 2|3 means 23

1	3 9
3	4 5 5 5 6
4	0 1 4 7 8
5	5

(3)

(b) Write down the mode.

35

.....

(1)

(c) Work out the range.

55 - 23

32

.....

(1)

42. Timothy asked 30 people how long it takes them to get to school.

The table shows some information about his results.

Time (t minutes)	Frequency
$0 < t \leq 10$	2
$10 < t \leq 20$	8
$20 < t \leq 30$	12
$30 < t \leq 40$	7
$40 < t \leq 50$	1
	30

midpoint	fx
5	10
15	120
25	300
35	245
45	45
	720

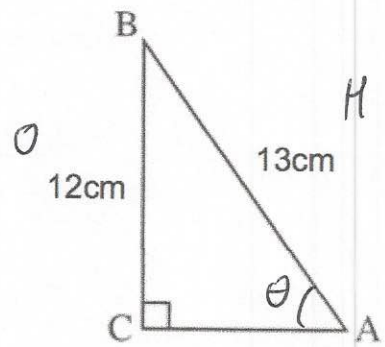
Work out an estimate for the mean time taken.

$720 \div 30$

24 .....minutes

(4)

43.



$\sin\theta = \frac{O}{H}$

$\sin\theta = \frac{12}{13}$

$\sin^{-1}\frac{12}{13}$

Calculate the size of angle BAC.

67.38 .....°

(3)

44. Fiona leaves £1600 in the bank for four years.
It earns compound interest of 4% each year.

Calculate the total amount Fiona has in the bank at the end of the four years.

$1600 \times 1.04^4 = £1871.77$

£ 1871.77

(3)

---

45. Lauren is given a 12% pay rise.
Her new salary is £24,080

What was Lauren's salary before the pay rise?

$112\% = 24080$

$1\% = 215$

$100\% = 21500$

£ 21500

(3)

---

46. Solve the simultaneous equations

(1) $3x + 5y = 1$ $\times 3$

(2) $2x - 3y = 7$ $\times 5$

Do not use trial and improvement

$9x + 15y = 3$

$10x - 15y = 35$

$19x = 38$

$x = 2$

Put $x = 2$ into (1)

$6 + 5y = 1$

$y = -1$

check in (2)

$4 - -3 = 7$ ✓

x = 2 y = -1

(4)

47. (a) Factorise $y^2 + 7y + 10$

$(y+2)(y+5)$

(2)

(b) Factorise $y^2 - 12y - 64$

$(y-16)(y+4)$

(2)

(c) Factorise fully $y^2 - 25$

$(y-5)(y+5)$

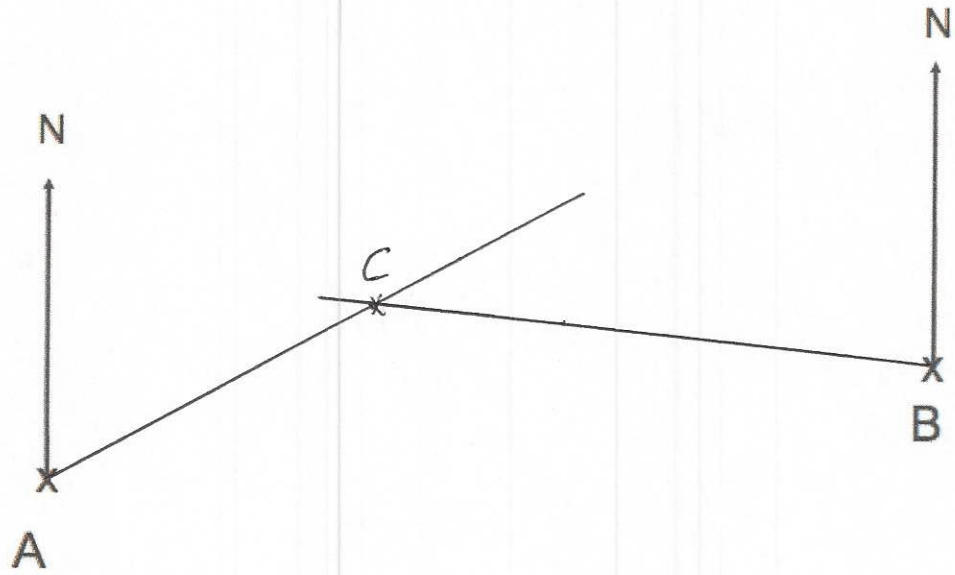
(2)

(d) Factorise $y^2 - 13y + 36$

$(y-4)(y-9)$

(2)

48. The diagram shows the position of two people, A and B, who are on their Duke of Edinburgh expedition.



The bearing of person C from person A is 062°
The bearing of person C from person B is 275°

In the space above, mark the position of person C with a cross (x). Label it C.

(3)