Paper 1 Revision – A Bit of Everything

OCR Foundation

Corbettmaths

This is a collection of non-calulator questions from **all** areas of the specification

Answers Q1 to Q50

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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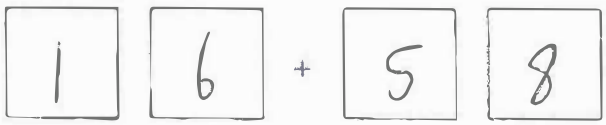
1. Here are four different digits.

8 1 5 6

(i) Put one digit in each box to make the **smallest** total.
You may only use each digit once.



or 1 8 5 6

(1)

(ii) Write down the total

74

(1)

---

2. The heights of 7 children are shown below.

132cm 1.2m 98cm 0.99m 116cm 1.4m 1.33m

(a) Change 132cm into metres.

1.32 m

(1)

(b) Change 98cm into metres.

0.98 m

(1)

(c) Order the heights, starting with the shortest.

98cm, 0.99m, 116cm, 1.2m, 132cm, 1.33m, 1.4m

(1)

(d) Work out the median.

1.2m

(1)

Children over 1 metre may go on a ride at a funfair.

(e) What fraction of the children may not go on the ride.

$\frac{2}{7}$

(1)

3. 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?

3/5

.....

(1)

(b) What is the range of the temperatures?

1 - -6

7 .....°C

(1)

---

4. From the list of numbers

3 5 7 9 11 15 24

(a) Write down a factor of 12

3

.....

(1)

(b) Write down a factor of 28

7

.....

(1)

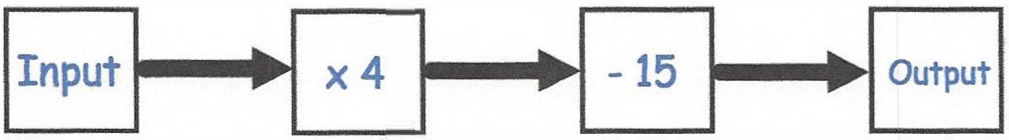
(c) Write down a factor of 81

9

.....

(1)

5.



(a) Work out the output, when the input is 10.

25

.....

(1)

(b) Work out the input, when the output is 25.

10

.....

(1)

(c) If the input is the same as the output, work out the input.

5

.....

(1)

---

6. Don says

"the difference between two consecutive cube numbers is even."

Is Don correct?
You must show your workings.

1, 8, 27, 64, 125

8 - 1 = 7

27 - 8 = 19

64 - 27 = 37

No

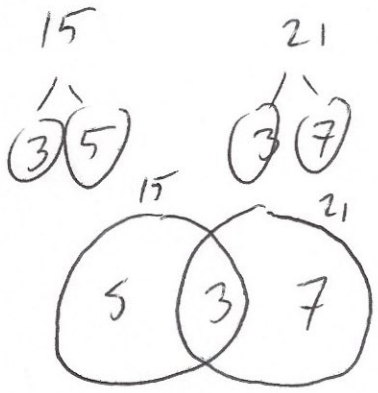
(2)

7. Trains leave Bristol

to Cardiff every 15 minutes
to London every 21 minutes

A train to Cardiff and a train to London both leave Bristol at 11am.

At what time will a train to Cardiff and a train to London next leave Bristol at the same time?



$5 \times 3 \times 7 = 105$

$Lcm = 105$

12:45pm

.....

(3)

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8. Penny gets £8 pocket money.
She is given an increase of £3.

(a) Write down £3 as a fraction of £8

$\frac{3}{8}$

.....

(1)

(b) Write your answer as a percentage

37.5 %

.....

(1)

9. Jo has a recipe for Bolognese Sauce,

Bolognese Sauce

		÷5	×4
Minced Beef	500 g	100g	400g
Chopped Tomatoes	750 g	150g	600g
Mushrooms	40 g	8g	32g
Chicken Stock	150 ml	30ml	120ml

She only has 400g of minced beef.

How much of the other ingredients should she use?

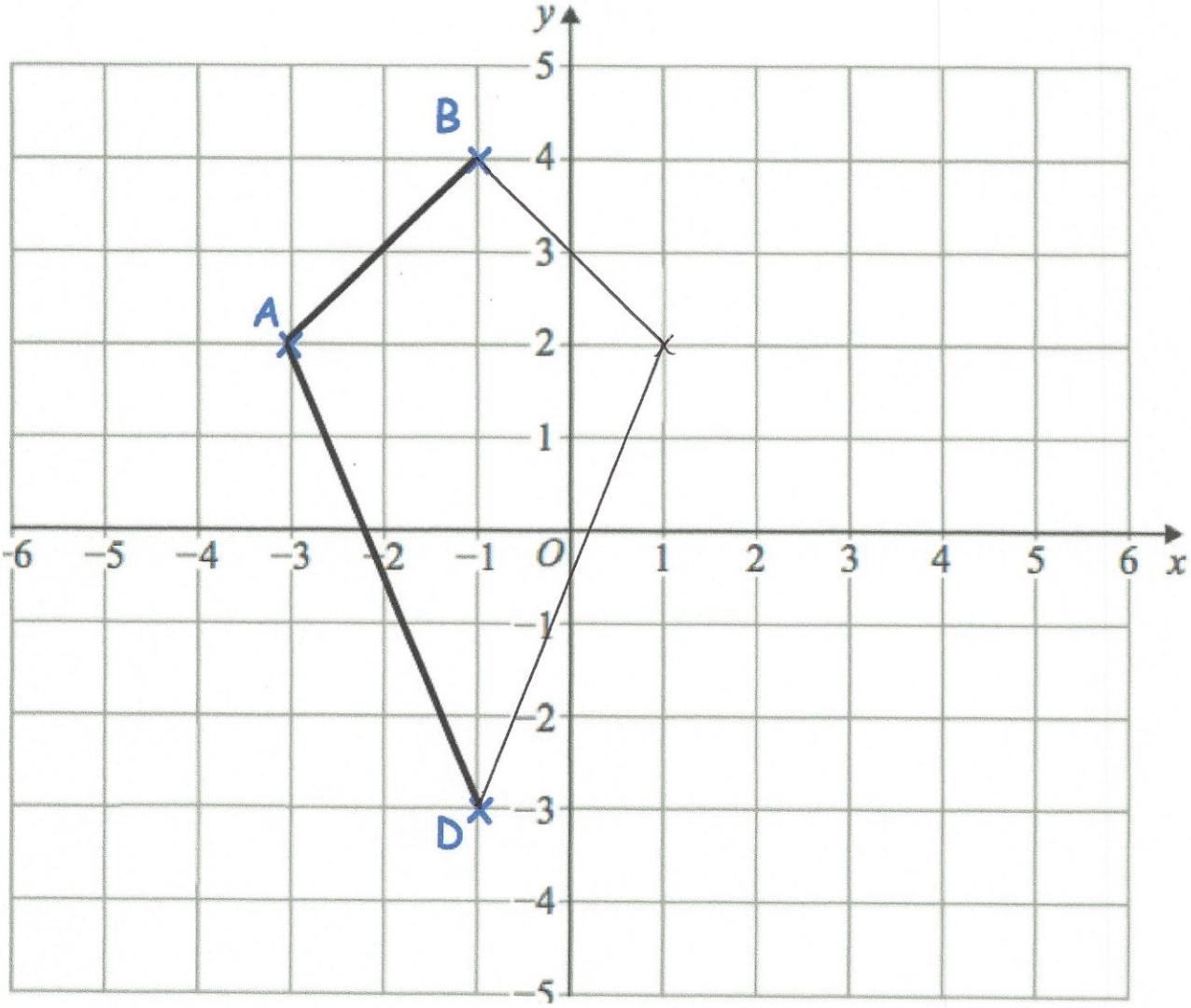
Chopped Tomatoes: 600 .....g

Mushrooms: 32 .....g

Chicken Stock: 120 ml .....g

(3)

10. The points A (-3, 2), B (-1, 4) and D (-1, -3).



ABCD is a kite.
Complete the kite and write down the coordinates of C.

(1 , 2)

(2)

11. An airplane has economy and first class seating.
There are s seats in each row in economy.
There are t seats in each row in first class.

There are 9 rows in first class and 24 rows in economy.

Write down an expression, in terms of s and t, for the number of seats on the airplane.

$9t + 24s$

(2)

12.

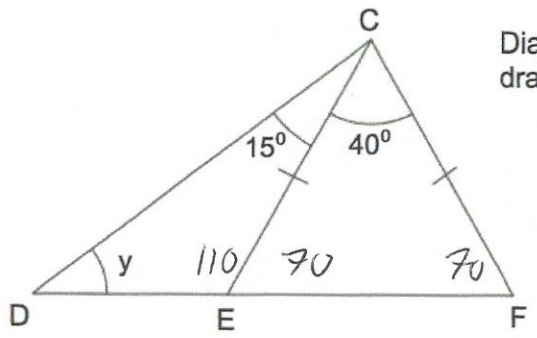


Diagram not drawn accurately

DEF is a straight line.
CE = CF.
Angle ECF is 40°.
Angle DCE is 15°.

Find the size of the angle marked y.

110 + 15 = 125

180 - 125 = 55

55 .....°

(4)

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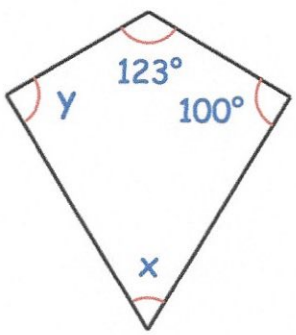
13. Shown below is a kite.



(a) Find x

123
100
+ 100
323

360
- 323
37

37 .....°

(1)

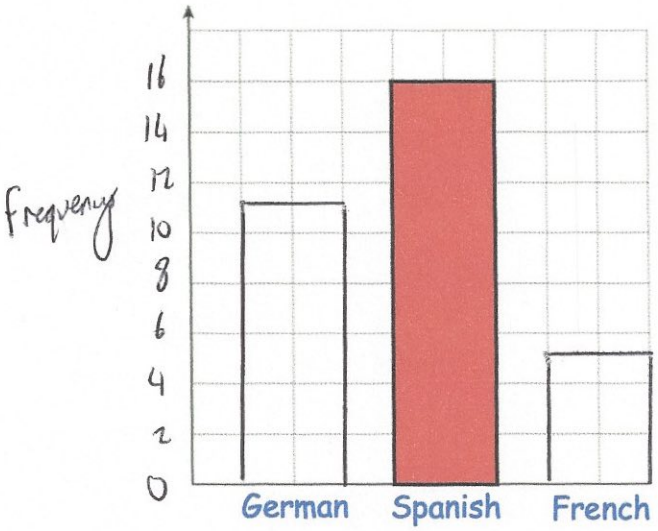
(b) Find y

100 .....°

(1)

14. Miss Jackson asked the 32 students in her tutor group which language they study.

Each student studies one language only.



16

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

11 5

Complete the bar chart.

(4)

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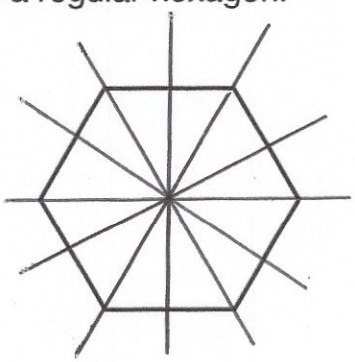
15. The diagram below shows a regular hexagon.



(a) Write down the order of rotational symmetry of the hexagon.

6

.....

(1)

(b) On the diagram draw in all the lines of symmetry.

(2)

16. Complete the table below.

	Faces	Edges	Vertices
Cube	6	12	8
Square-based Pyramid	5	8	5
Triangular Prism	5	9	6

(6)

17. Here is part of a train timetable.

	Departure times			
Antrim	12:30	13:00	14:00	16:00
Randalstown	12:45	13:15	14:15	16:15
Ballymena	13:01	13:31	14:31	16:31
Ballycastle	13:39	14:09	15:09	17:09

Freddy wants to travel from Randalstown to Ballycastle.
He arrives at Randalstown at 13:03 to catch the next train to Ballycastle.

(a) How long does this train journey take?

13:15 → 14:00 → 14:09 54 .....minutes
45 9

(2)

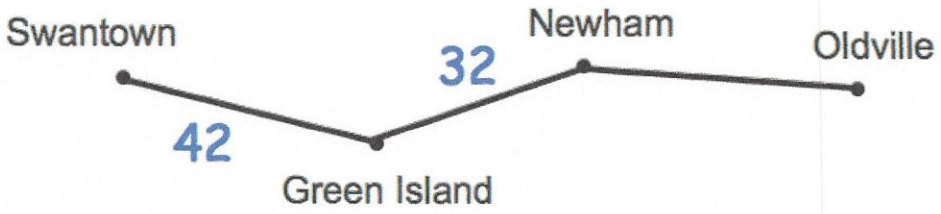
Jennifer lives in Antrim and her friend lives in Ballymena.
Jennifer lives a 5 minute walk from Antrim train station.
Her friend lives a 30 minute walk from Ballymena train station.
Jennifer wants to arrive at her friend's house **before** 3pm.
Plan Jennifer's journey to her friend's house.

Jennifer can catch the 12:30 or 13:00 train but not the 14:00 or 16:00

e.g. Jennifer should leave at (or before) 12:55 so she can get the Antrim station at 13:00 (or before). She should catch the 13:00 train to Ballymena; arriving at 13:31. She should arrive at her friend's house by 14:01.

(5)

18. Here is a route map between four towns.
The distances, in kilometres, between some of the towns are shown on the map.



The distance from Swantown to Oldville is 95 kilometres.

(a) Work out the distance from Newham to Oldville.

42 + 32 = 74

95 − 74 = 21

21 ..... kilometres
(2)

(b) Complete the distance chart below to show the distances between the towns.

Swantown			
42	Green Island		
74	32	Newham	
95	53	21	Oldville

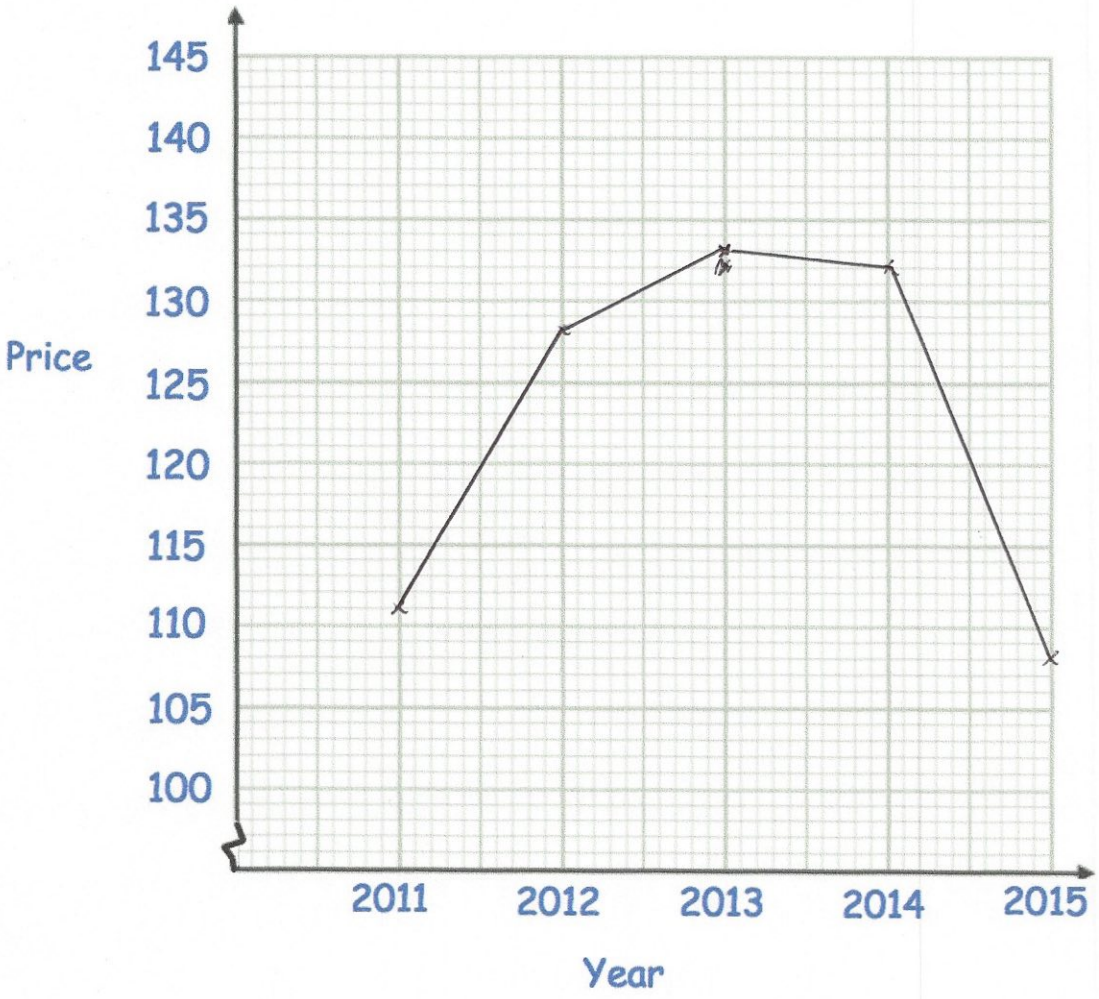
(3)

19. The table shows the average price of unleaded petrol in England over 5 years.

Year	Price in pence
2011	111
2012	128
2013	133
2014	132
2015	108

+17
+5
-1
-24

(a) Draw a line graph for the data



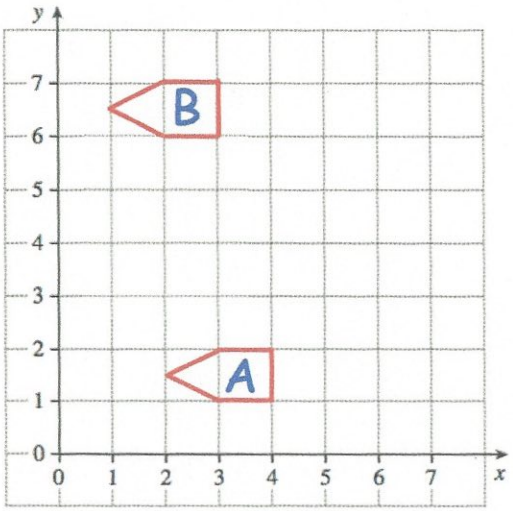
(2)

(b) Between which two consecutive years did the price increase the most?

2011 and 2012

(1)

20.



Write down the translation vector that would take A to B.

$\begin{pmatrix} -1 \\ 5 \end{pmatrix}$

(1)

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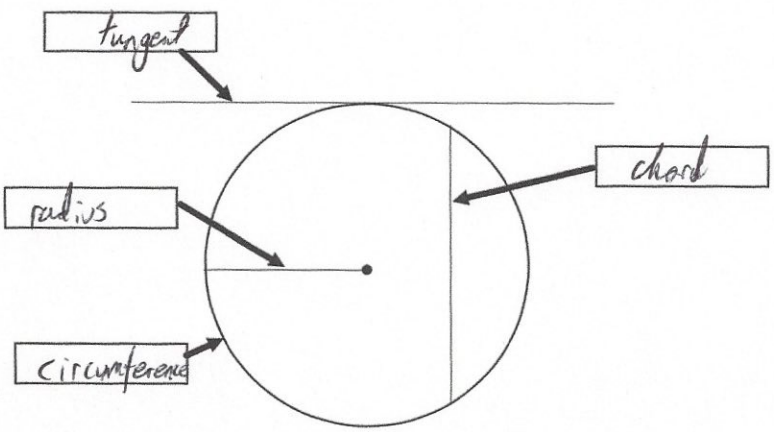
21. Here is a list of words connected to circles.

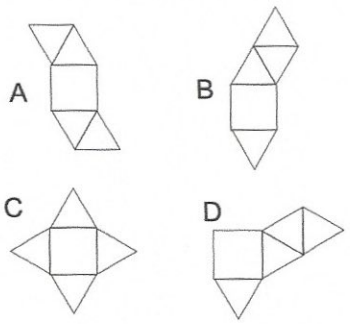
Tangent Radius Diameter Chord Centre Circumference

Label the four boxes in the diagram below, by choosing the correct word from the list.



(4)

22. Here are 4 diagrams.



Three of these diagrams show a net for a square-based pyramid.

Write down the letter of the diagram which is **not** a net for a square-based pyramid.

B

(1)

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23. Simplify

(a) $8 \times y \times 2$

$16y$

(1)

(b) $a \times a \times a$

a^3

(1)

(c) $3 \times a \times c$

$3ac$

(1)

(d) $w \times 5 \times e$

$5ew$

(1)

(e) $2y \times y$

$2y^2$

(1)

(f) $3a \times 4c$

$12ac$

(1)

24. 100 people study one language at a college.

Some people study French.
Some people study Spanish.
The rest of the people study German.

54 of the people in Year 10 and the rest are in Year 11.
20 of the 29 people who study Spanish in Year 11.
31 people study German.
15 Year 11 students study French.

Work out the number of Year 10's who study German.

	Yr 10	Yr 11	Total
French	25	15	40
Spanish	9	20	29
German	20	11	31
Total	54	46	100

20

20

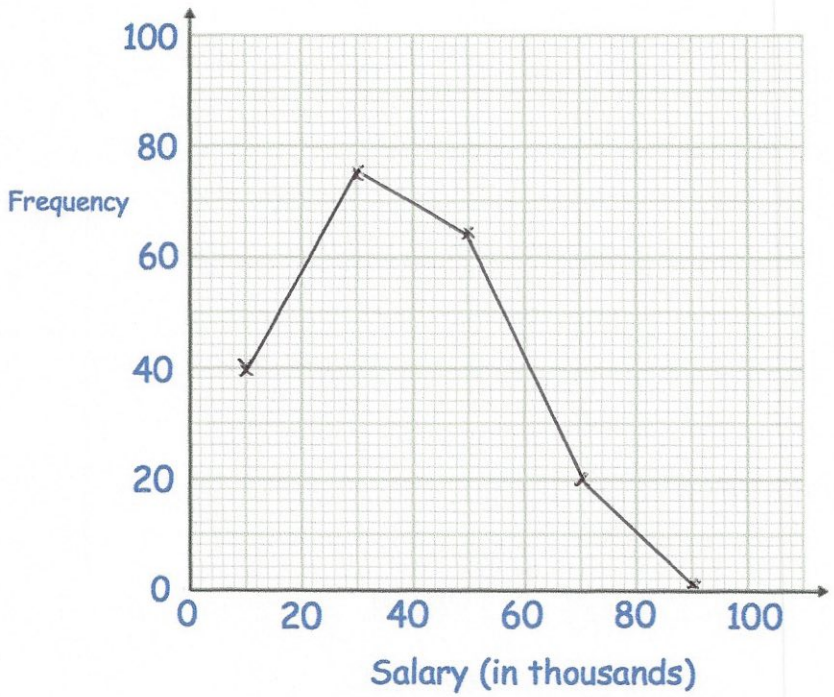
.....

(4)

25. The table gives information about the income of 200 households in a village.

Income (thousands)	Frequency
$0 < I \leq 20$	40
$20 < I \leq 40$	75
$40 < I \leq 60$	64
$60 < I \leq 80$	20
$80 < I \leq 100$	1

Draw a frequency polygon for the information in the table.



(2)

26. Magnus flips a fair coin once and rolls an ordinary dice once.

(a) Write down all the possible outcomes.

H1 H2 H3 H4 H5 H6

T1 T2 T3 T4 T5 T6

(2)

(b) Find the probability that Magnus gets a head and a 3.

1/12

(1)

27.

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

$11a - 2c$

.....

(2)

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

$-2a - 7w$

.....

(2)

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

$4y^2 + w^2$

.....

(2)

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28. Hannah is recording the number of letters in each word in an article.

These are the first ten lengths.

3 4 5 6 2 4 3 7 3 6

(a) Work out the median.

2 3 3 3 4 4 5 6 6 7

4

.....

(2)

(b) Calculate the mean.

$2 + 3 + 3 + 3 + 4 + 4 + 5 + 6 + 6 + 7 = 43$

$43 \div 10$

4.3

.....

(2)

The 11th word has 4 letters.

(c) Tick the box which describes what affect this will have on the mean.

The mean will decrease	The mean will remain the same	The mean will increase
☑	☐	☐

(1)

(d) Tick the box which describes what affect this will have on the median.

The median will decrease	The median will remain the same	The median will increase
☐	☑	☐

(1)

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29. James bought a motor scooter on hire purchase.
He paid a deposit of £275 and 18 monthly payments of £36.

At the end of the payments, he sold the motor scooter for £450.

How much did it cost him in total?

$$\begin{array}{r} 36 \\ \times\ 18 \\ \hline 288 \\ +\ 360 \\ \hline 648 \end{array} \qquad \begin{array}{r} 648 \\ +\ 275 \\ \hline 923 \end{array} \qquad \begin{array}{r} 923 \\ -\ 450 \\ \hline 473 \end{array}$$

£ 473

(3)

30. Paul has £10 to buy rulers at 60p each.

What change should he get if he buys as many as possible?

$$60\overline{)1^{1}0^{10}0^{40}0} = 016.40$$

40p

.....

(3)

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31. James has x pence.
Hannah has 5 pence more than James. $x+5$
Liam has 2 pence less than James. $x-2$

The total amount of money they have is 75 pence.

(a) Use this information to write down an equation in x.

$$3x + 3 = 75$$

$3x + 3 = 75$

.....

(2)

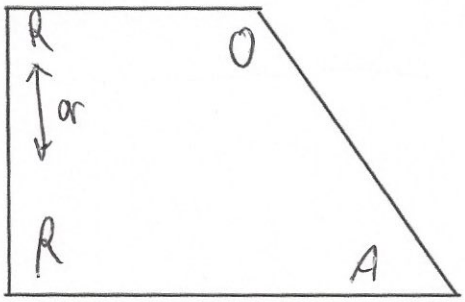
(b) Solve the equation to find out how much money James has.

$$3x + 3 = 75$$
$$-3 \quad -3$$
$$3x = 72$$
$$x = 24$$

24 .....pence

(2)

32. Here is a trapezium.



(a) Mark a right angle with a letter R.

(1)

(b) Mark an acute angle with a letter A.

(1)

(c) Mark an obtuse angle with a letter O.

(1)

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33. (a) Write 5725 to the nearest 100.

5700

(1)

(b) Write 83.07718 correct to two decimal places.

83.08

(1)

(c) Write 6.35 correct to 1 decimal place.

6.4

(1)

(d) Write 129.34952 correct to 1 decimal place.

129.3

(1)

34. Work out an estimate for

$$\frac{596.4 \times 2.06}{0.521}$$

600×2
0.5

$600 \times 2 = 1200$

$1200 \div 0.5 = 2400$

2400

(3)

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35. Work out

(a) $(2 + 5)^2$

$7^2 = 49$

49

(1)

(b) $5 + 3 \times 6$

$5 + 18 = 23$

23

(1)

(c) $22 - 14 \div 2$

$22 - 7$

15

(1)

36. Timothy orders the following items at a restaurant.

4 pizzas at £4.49 each.
2 garlic breads at £3.10 each.
2 orange juices at £1.19 each.
2 sparkling water at 99p each.

Complete the bill below.

Corbett Cuisine		
	£	pence
4 pizzas at £4.49	17	96
2 garlic bread at £3.10	6	20
2 orange juice at £1.19	2	38
2 sparkling water at 99p	1	98
Total	28	52

(4)

37. From the list of numbers

7 9 12 21 23 30 36 45

(a) write down the multiples of 7.

7, 21

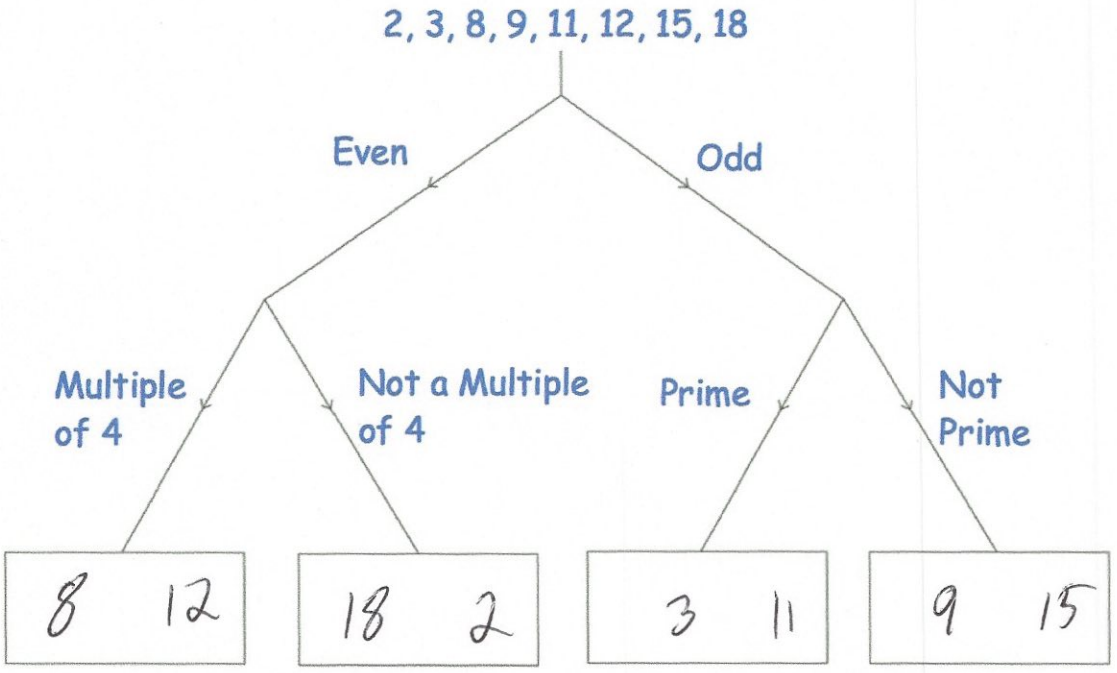
(2)

(b) write down the multiples of 5.

30, 45

(2)

38. Sort **all** the numbers into the correct boxes.



(3)

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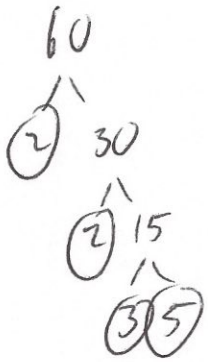
39. Arrange these in order, starting with the smallest.

3^2	$\sqrt{100}$	4^2	$\sqrt{80}$
9	10	16	≈ 8.9 (since $\sqrt{81} = 9$)

$\sqrt{80}$ 3^2 $\sqrt{100}$ 4^2

(2)

40. (a) Write 60 as a product of its prime factors.



$2 \times 2 \times 3 \times 5$

or $2^2 \times 3 \times 5$

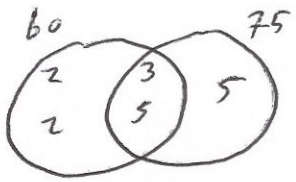
.....

(2)

(b) Find the Lowest Common Multiple (LCM) of 60 and 75.

$60 = 2 \times 2 \times 3 \times 5$

$75 = 3 \times 5 \times 5$



300

.....

(2)

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41. Bill is 80 years old.

His son Max is $\frac{5}{8}$ of his age.

His granddaughter Jayne is $\frac{1}{5}$ of his age.

How many years older than Jayne is Max?

$\frac{5}{8}$ of $80 = 50$

$\frac{1}{5}$ of $80 = 16$

$50 - 16 = 34$

34

.....

(4)

42. Work out, as a simplified fraction.

$$\frac{3}{4} + \frac{2}{9}$$

$\frac{27}{36} + \frac{8}{36}$

$\frac{35}{36}$

.....

(2)

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43. Work out

$$1\frac{1}{3} \times 2\frac{2}{5}$$

Give your answer as a mixed number.

$\frac{4}{3} \times \frac{12}{5} = \frac{48}{15} = 3\frac{3}{15}$

$= 3\frac{1}{5}$

.....

(3)

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44. Work out

$$\frac{2}{17} \div \frac{2}{5}$$

$\frac{2}{17} \times \frac{5}{2} = \frac{10}{34}$

$= \frac{5}{17}$

Give your answer as a fraction in its simplest form.

$\frac{5}{17}$

.....

(2)

45. At Frome International train station, 35% of trains were late in a week.
In that week there were 440 trains.

Calculate how many trains were on time.

10% = 44
44
+ 44
30% = 132

132 (30%)
22 5%
+
154
3 1 3 1
4 4 0
- 1 5 4
2 8 6

286

.....

(3)

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46. At a rugby match, the ratio of children to adults is 2 : 3 (C A)
There are 80 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 ÷ 2 = 40
40 x 3 = 120 adults

120 x 8 = £960

80 x 2 = 160

960 + 160 = 1120

£ 1120

(4)

47. $v = u + at$

(a) Work out v when u = 23, a = 4 and t = 3

$23 + 4 \times 3$

$23 + 12$

35

.....

(2)

(b) Work out u when v = 30, a = 2 and t = 8

$30 = u + 2 \times 8$

$30 = u + 16$

14

.....

(2)

(c) Work out t when v = 40, u = 12 and a = 4

$40 = 12 + 4t$

$28 = 4t$

$t = 7$

7

.....

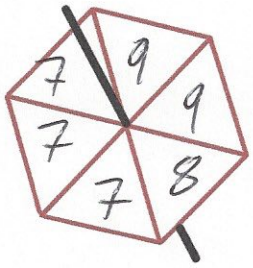
(2)

48. Tony makes a fair six-sided spinner.
The spinner has the numbers 7, 8 and 9 on it.

The probability the spinner will land on 7 is greater than the probability that the spinner will land on 8.

The probability that the spinner will land on 9 is $\frac{1}{3}$ $\frac{1}{3}$ of $6 = 2$

Write the numbers on the spinner.



(2)

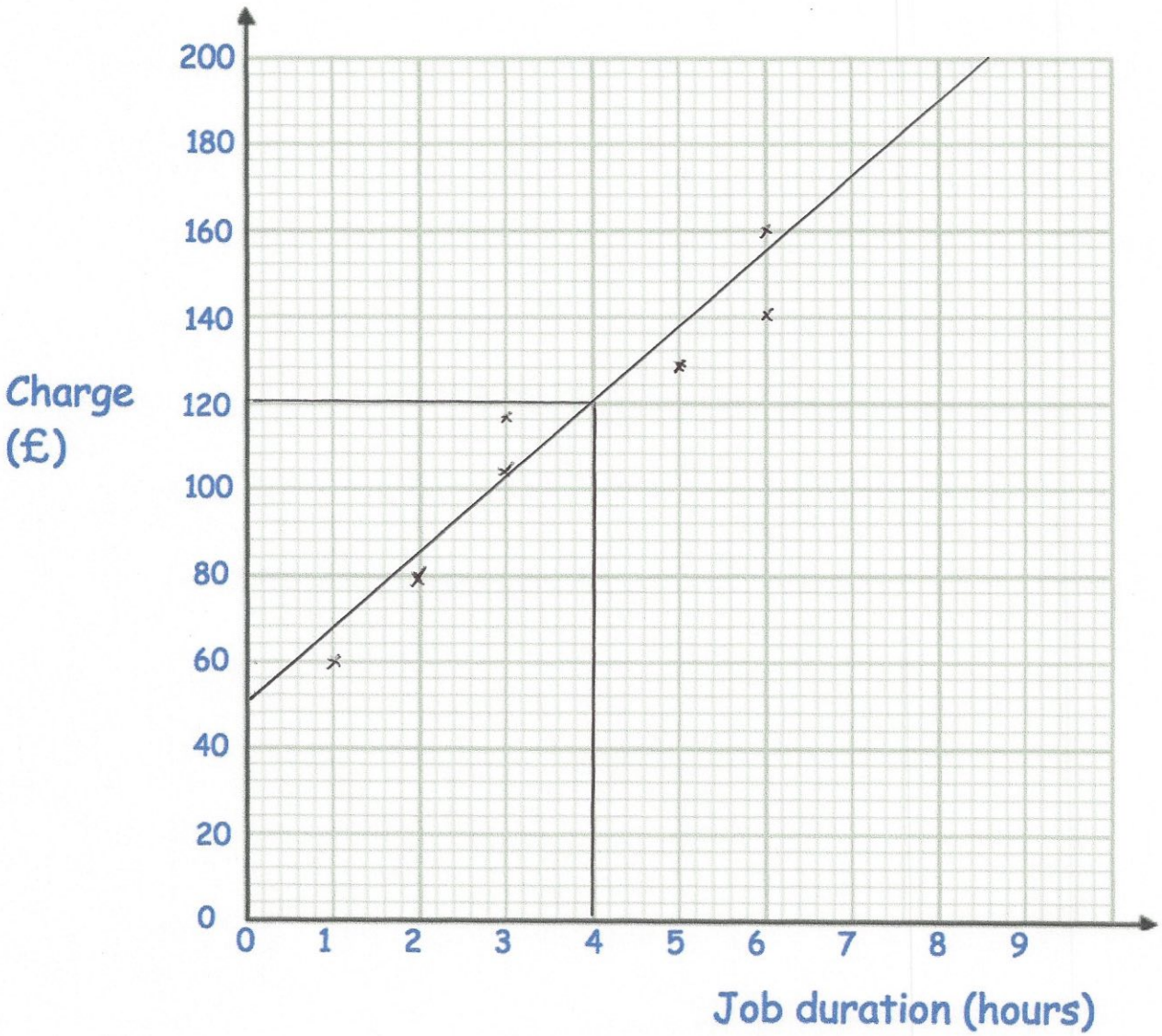
49

49. The table shows the charge (£) by plumbers for jobs of different duration (hours).

Job duration (hours)	1	2	3	3	5	6	6
Charge (£)	60	80	104	116	128	140	160

(a) Plot the data on the scatter graph below.

(2)



(b) Describe the correlation.

There is a positive correlation; which means as the job duration increases, so does the charge.

(1)

(c) Draw a line of best fit on the scatter graph.

(1)

(d) Use your line of best fit to estimate the charge for a 4 hour job.

£ 120

(1)

(e) Explain why it may **not** be appropriate to use your line of best fit to estimate the charge for a job lasting 12 hours.

It is beyond the range of the data.
It is extrapolation, therefore may be unreliable

(1)

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50. The number of hours of sunshine on a day, across a number of cities is shown below.

☼ = 2 hours of sunshine

Norwich	☼ ☼ ☼ ☼ ☼ ◐	11
Dublin	☼ ☼ ☼ ☼	8
Belfast	☼ ☼ ☼ ◐	7
Aberdeen	☼ ☼	4
Cardiff	☼ ☼ ☼ ☼	8
Glasgow	☼ ☼ ☼ ☼ ◐	

(a) How many more hours of sunshine was there in Norwich than Belfast?

4 hours

(1)

In Glasgow there was 9 hours of sunshine.

(b) Complete the pictogram.

(2)