Name:

GCSE Maths 2022
Edexcel Foundation Paper 2
Set A
Calculator

Corbettmaths

Equipment

1. A black ink ball-point pen.
2. A pencil.
3. An eraser.
4. A ruler.
5. A pair of compasses.
6. A protractor.

Answers

Guidance

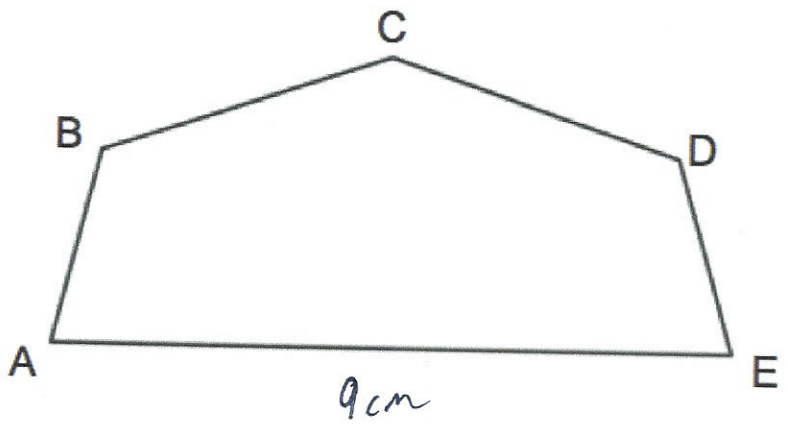
1. Read each question carefully.
2. Check your answers seem right.
3. Always show your workings

Information

1. This paper has been created based on topics in the Advance Information.
2. Also see Corbettmaths for the checklist for the entire GCSE as these topics may still be useful for Paper 2
3. There is one question per topic - this paper is designed to give an opportunity to practice each topic rather than replicate the actual paper.
4. The marks for questions are shown in brackets

GCSE 2022 Resources

1. Shown is a shape ABCDE.



(a) What is the name of shape ABCDE?

Pentagon
(1)

(b) Measure the length of line AE.

* depends on scale used by printer.

9 cm
(1)

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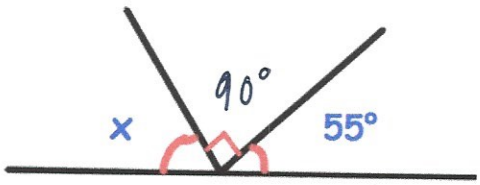
2. Shown below is a straight line.



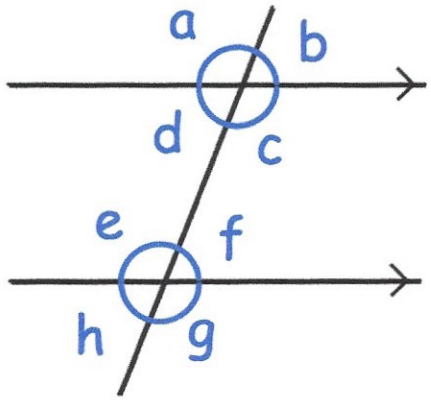
Find the size of the angle x.

$90 + 55 = 145°$

$180° - 145° = 35°$

35 °
(2)

3.

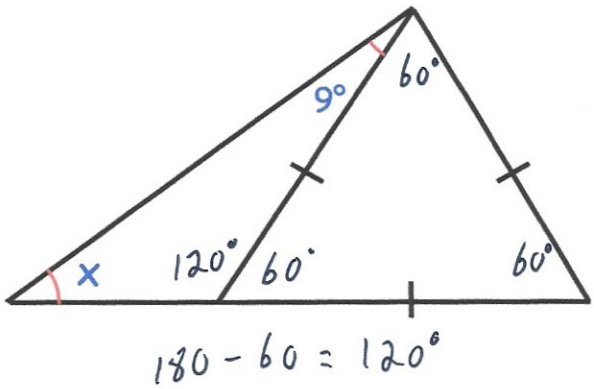


Which angle is vertically opposite to angle *b* ?

d

(1)

4.



$180 - 60 = 120°$

Find the size of the angle marked x.

$180 \div 3 = 60°$

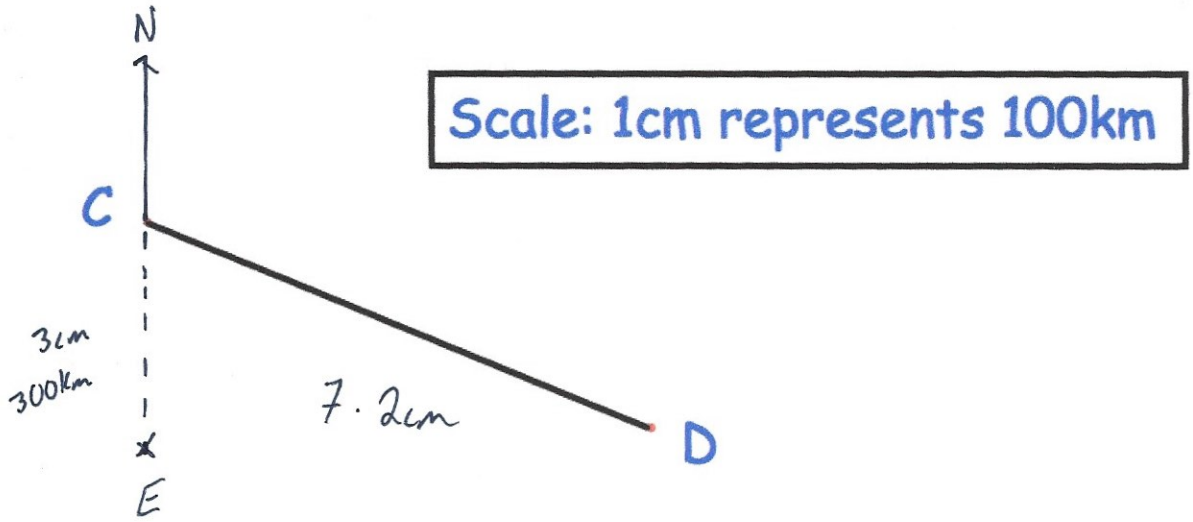
$9 + 120 = 129°$

$180° - 129° = 51°$

51 °

(3)

5. The diagram shows a scale drawing.



* depends on scale used by printer

(a) Use the diagram to calculate the actual distance from C to D.

720 .....km

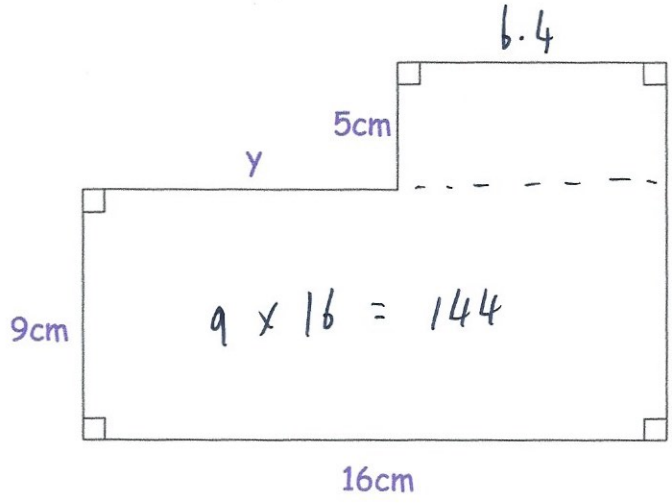
(2)

E is 300km due south of C.

(b) Show E on the diagram.

(1)

6.



The total area is 176cm²

Find the value of y

176 - 144 = 32

32 ÷ 5 = 6.4

16 - 6.4 = 9.6

9.6 .....cm

(4)

---

7. (a) Convert 0.2 m² into cm²

0.2 x 100 x 100 = 2000

2000 cm²

(1)

The mass of a 2p coin is 7g.

(b) Find the mass of £6 worth of 2p coins.
Give your answer in kilograms.

600 ÷ 2 = 300

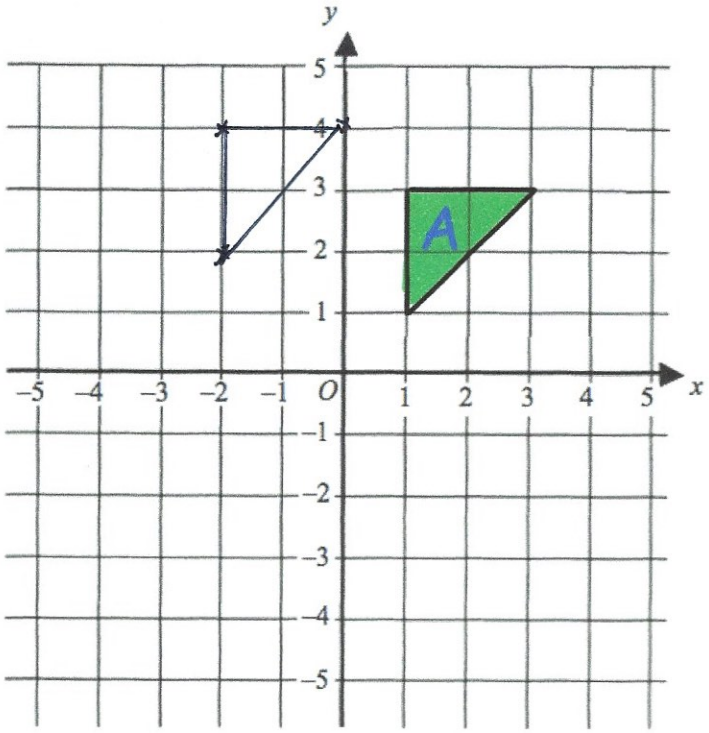
300 x 7 = 2100g

2.1kg

2.1 .....kilograms

(3)

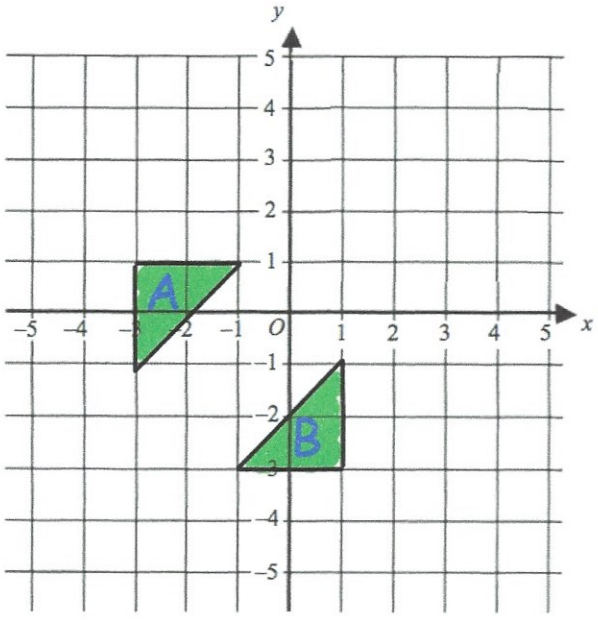
8.



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

(2)

9.

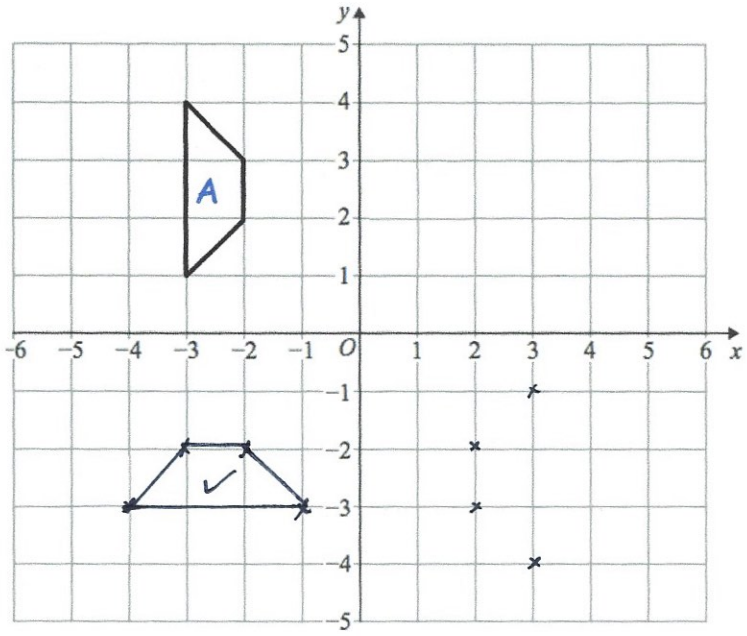


Describe fully the single transformation that maps triangle A onto triangle B.

Reflection in the mirror line $y = x$

(2)

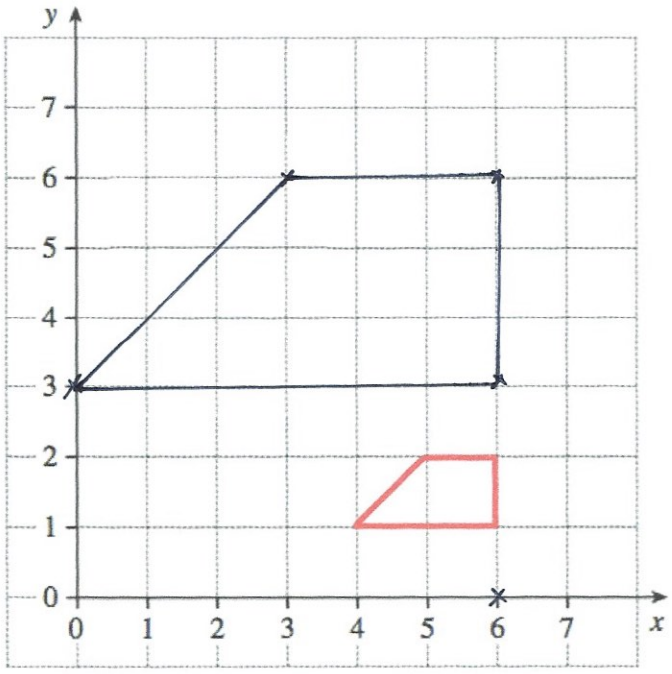
10.



Rotate trapezium A 90° anti-clockwise about the origin.

(3)

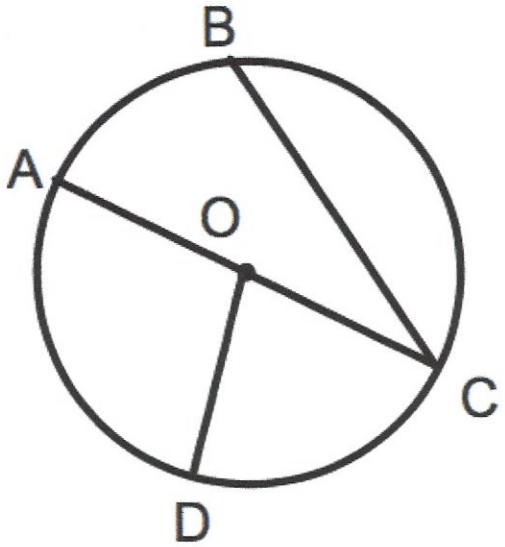
11.



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

(2)

12. Points A, B, C and D are four points on the circle with centre O.



Here are six words that are used with circles.

Arc **Diameter** **Chord** **Tangent** **Circumference** **Radius**

Choose the correct word to describe each line below.

(a) The straight line AC is a ..... diameter ..... of the circle.

(1)

(b) The straight line OD is a ..... radius ..... of the circle.

(1)

(c) The straight line BC is a ..... chord ..... of the circle.

(1)

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13. A circular mirror has a diameter of 1.3m.

Work out the circumference of the mirror.

$C = \pi \times d$

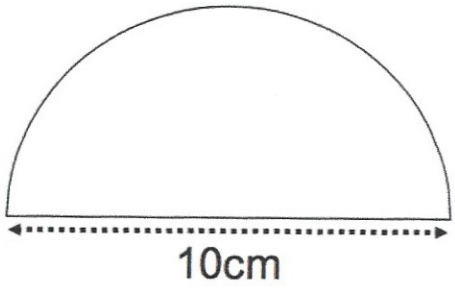
$= \pi \times 1.3$

$= 4.08407045$

4.084 .....m

(2)

14. Shown is a semi-circle.



Work out the area.
State the units for your answer.

$A = \frac{1}{2}\pi r^2$

$A = \frac{1}{2} \times \pi \times 5^2$

$= 39.2699... \text{ cm}^2$

39.27 cm²

(3)

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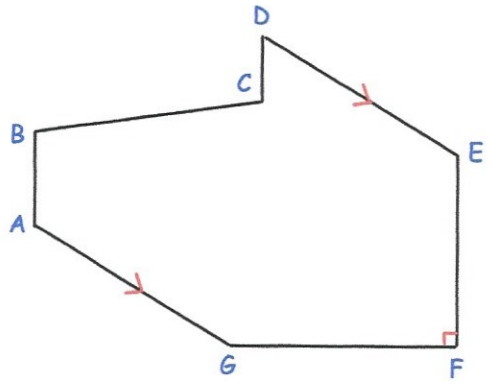
15. The diagram below shows a shape ABCDEFG.



(a) What is the mathematical name given to ABCDEFG?

heptagon

(1)

(e) Which line is parallel to AG?

DE

(1)

(f) Which line is perpendicular to EF?

FG

(1)

16. A farmer says he has 2,500 sheep, to the nearest 100.

What is the greatest possible number of sheep he has?

2549

.....

(1)

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17. List all the multiples of 13 between 30 and 60.

13 26 39 52 65

39 & 52

.....

(1)

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18. Hannah is baking two cakes.

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

One cake needs 1⅓ cups of milk.
Hannah has 1¼ cups of milk.

How much more milk does Hannah need?

$2\frac{2}{3} - 1\frac{1}{4}$

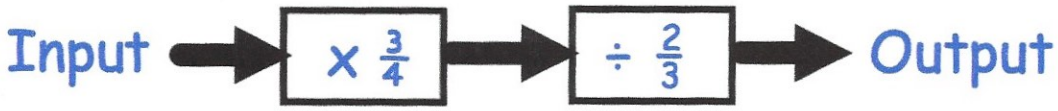
$\frac{8}{3} - \frac{5}{4}$

$\frac{32}{12} - \frac{15}{12} = \frac{17}{12}$

$1\frac{5}{12}$ .....cups

(3)

19.



Find the output, if the input is 3.

$3 \times \frac{3}{4} = \frac{9}{4}$

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

$\frac{9}{4} \times \frac{3}{2} = \frac{27}{8}$

$3\frac{3}{8}$ (or $\frac{27}{8}$)

(3)

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20. Work out

$$\frac{7}{9} + \frac{1}{2} \div \frac{3}{5}$$

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

$\frac{1}{2} \times \frac{5}{3} = \frac{5}{6}$

$\frac{7}{9} + \frac{5}{6}$ $\quad \frac{14}{18} + \frac{15}{18} = \frac{29}{18}$

$1\frac{11}{18}$ (or $\frac{29}{18}$)

(3)

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21. Find the reciprocal of 0.6

$\frac{3}{5} \rightarrow \frac{5}{3}$

$1\frac{2}{3}$ (or $\frac{5}{3}$)

(1)

22. Arrange these fractions in order, smallest first.

$\frac{2}{3}$ $\frac{7}{9}$ $\frac{5}{6}$ $\frac{11}{18}$

$\frac{12}{18}$ $\frac{14}{18}$ $\frac{15}{18}$ $\frac{11}{18}$

$\frac{11}{18}$ ..... $\frac{2}{3}$ ..... $\frac{7}{9}$ ..... $\frac{5}{6}$ .....

(2)

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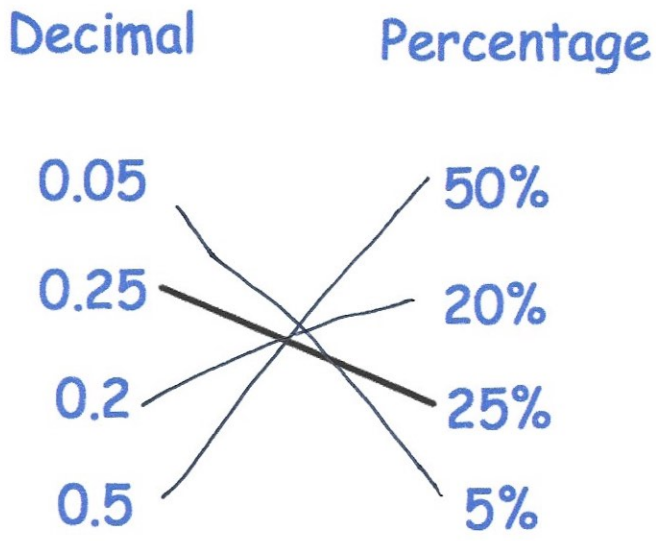
23. Match each decimal and percentage.



(2)

24. An adult ticket for a museum is £16.00
A child ticket costs 70% of the price of an adult ticket.
Mrs Jenkins and her three children go to the museum.

Mrs Jenkins has a voucher that reduces the total entry cost by 10%

Mrs Jenkins pays with three £20 notes.

Work out how much change Mrs Jenkins will receive.

10% of £16 = £1.60

70% of £16 = £11.20

16 + 11.2 x 3 = £49.60

10% of £49.60 = £4.96

£49.60 − £4.96 = £44.64

£60 − £44.64

£ 15.36

(4)

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25. Priya bought a house for £80000.
She sold the house for £122400.

Work out the percentage profit.

122400 − 80000 = 42400

$\frac{42400}{80000} \times 100 =$

53 %

(2)

26. When a tennis ball is dropped, it bounces and then rises.
The ball rises to 80% of the height from which it is dropped.
The ball is dropped from a height of 4 metres.

(a) Calculate the height of the rise after the first bounce.

4×0.8

3.2 .....m
(1)

(b) Calculate the height of the rise after the second bounce.

3.2×0.8

2.56 .....m
(1)

The ball carries on bouncing, each time rising to 80% of the last rise.

(c) For how many bounces does the ball rise to a height greater than 2m?

$2.56 \times 0.8 = 2.048$

$2.048 \times 0.8 = 1.6384$

3 .....
(2)

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27. At a rugby match, the ratio of children to adults is 2 : 3
There are 80 children in the crowd.
Each adult ticket costs £8
Each child ticket costs a quarter of the adult ticket. $8 \div 4 = £2$

Work out the total money made from ticket sales.

$80 \div 2 = 40$

$40 \times 3 = 120$

$120 \times 8 = £960$

$80 \times 2 = £160$

1120

£ 1120 .....
(4)

28. Martina wants to convert £3000 into Euros.
The Post Office only has €20 notes.

The exchange rate is £1 = €1.17

(a) Work out how many €20 notes Martina will receive.

$3000 \times 1.17 = 3510$

$3500 \div 20 = 175$

175

(3)

The next day the exchange rate changes to £1 = €1.18

(b) What effect would this have on your answer to (a) ?

$3000 \times 1.18 = 3540$

It would cause (a) to increase.

(1)

---

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

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Temperature	-6	3	-4	1	-4

What is the mean of the temperatures recorded?

$(-6) + 3 + (-4) + 1 + (-4) = -10$

$-10 \div 5 = -2$

-2°C

(2)

30. Arrange these numbers in order of size, starting with the smallest.

one billion 1,000,000,000
half a million 500,000
six hundred and ten thousand 610,000
ninety seven thousand 97,000
two million 2,000,000

smallest ninety seven thousand
half a million
six hundred & ten thousand
two million
largest one billion

(2)

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31. Frank rounds a number, y, to the nearest ten.
His result is 80
Write down the error interval for y

$75 \leq y < 85$

(2)

32. Leah bought a new car costing £18,000
She paid a deposit of £2,000.
Leah paid the rest of the money over 25 equal monthly payments.

How much was each monthly payment?

$18000 - 2000 = 16000$

$16000 \div 25 = £640$

£ 640

(2)

33. Ella takes part in an archery lesson

For every 4 arrows fired, only 3 hit the target.
Altogether Ella hit the target 24 times.

Work out how many arrows Ella fired.

$24 \div 3 = 8$

$8 \times 4 = 32$

32

(2)

34. Work out 0.7^3

0.343

(1)

35. Sophie asks 20 of her friends to choose their favourite sport.
Their replies are

Rugby	Football	Rugby	Hockey	Cricket
Football	Football	Rugby	Hockey	Football
Rugby	Cricket	Hockey	Football	Football
Football	Rugby	Football	Football	Rugby

Complete the tally and the frequency columns in the table below.

Sport	Tally	Frequency
Rugby	𝍸 I	6
Football	𝍸 IIII	9
Hockey	III	3
Cricket	II	2

(2)

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36. The two-way table shows the grades students in Year 10 received in their exams.

		Physics			
		A	B	C	D
Maths	A	7	6	1	1
	B	3	5	3	0
	C	4	2	6	3
	D	0	0	1	0

(a) How many students received a B in maths?

$3 + 5 + 3$

11

(2)

(b) How many students received a higher grade in physics than maths?

$3 + 4 + 2 + 1$

10

(2)

37. Abid goes to a coffee shop.
He chooses one drink and one snack.

Drink	Snack
Tea	Muffin
Coffee	Brownie
Juice	Crisps
	Pastry

Write down all the possible combinations.

TM TB TC TP

CM CB CC CP

JM JB JC JP

(2)

38. Mervyn plays six games of darts.
His scores are

120 71 80 14 90 117

(a) Work out the range of his scores.

120 - 14

106

(2)

(b) Work out the median of his scores.

~~14~~ ~~71~~ 80 90 ~~117~~ ~~120~~

85

(2)

(c) Work out the mean of his scores.

14 + 71 + 80 + 90 + 117 + 120 = 492

492 ÷ 6

82

(2)

39. The frequency table shows the number of pets owned by the students in Year 11

Number of pets	Frequency
0	13
1	28
2	50
3	9

Write down the modal number of pets owned.

2

(1)

40. The frequency table shows the piano grade of 17 students in a class.

Grade	Frequency
2	3
3	3
4	4
5	3
6	2 → 5
7	2

3 new students, who are all Grade 6, join the class.

The teacher says the median piano grade will increase.
Is she correct?
You must explain your answer.

2 2 2 3 3 3 4 4 4 4 5 5 5 6 6 7 7 median = 4

2 2 2 3 3 3 4 4 4 4 5 5 5 6 6 6 6 7 7 median = 4.5

Yes, the median increases from 4 to 4.5

(3)

41. There are 10 students in Class 1 and 20 students in Class 2.
All 30 students sit a test.

The mean score for the students in Class 1 was 80%
The mean score for the students in Class 2 was 70%
Find the mean score of all the students.

$10 \times 80 = 800$

$20 \times 70 = 1400$

2200

$2200 \div 30 = 73.\dot{3}$

73.33...%

(3)

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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	fx
$0 < t \leq 10$ 5	2	10
$10 < t \leq 20$ 15	8	120
$20 < t \leq 30$ 25	12	300
$30 < t \leq 40$ 35	7	245
$40 < t \leq 50$ 45	1	45
		720

Work out an estimate for the mean time taken.

$720 \div 30$

24 minutes

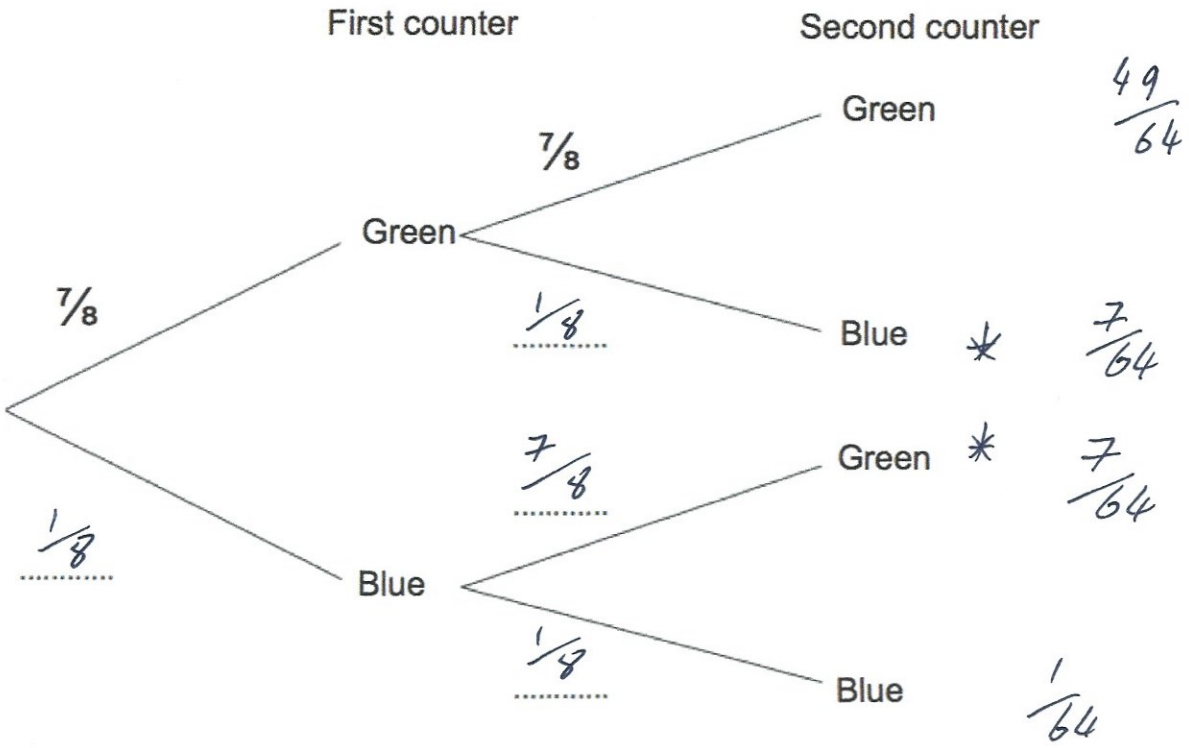
(4)

43. There are green and blue counters in a container.

Kevin takes at random a counter from the container.
He replaces the counter in the container.

Kevin takes at random a second counter from the container.

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that Kevin picks counters that are different colour.

$\frac{7}{64} + \frac{7}{64} = \frac{14}{64}$

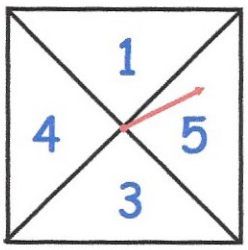
$\frac{7}{32}$

$\frac{7}{32}$

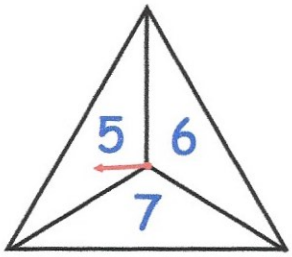
(2)

44. Two fair spinners are spun.

Spinner 1 has four equal sections labelled 1, 3, 4 and 5.
Spinner 2 has three equal sections labelled 5, 6 and 7.



Spinner 1



Spinner 2

Each spinner is spun once.
The numbers are added together to get a score.

(a) Complete the table to show all possible scores.

Spinner 1

Spinner 2	1	3	4	5
5	6	8	9 ✓	10
6	7 ✓	9 ✓	10	11 ✓
7	8	10	11 ✓	12

(2)

(b) Find the probability of scoring a 8

2/12

1/6

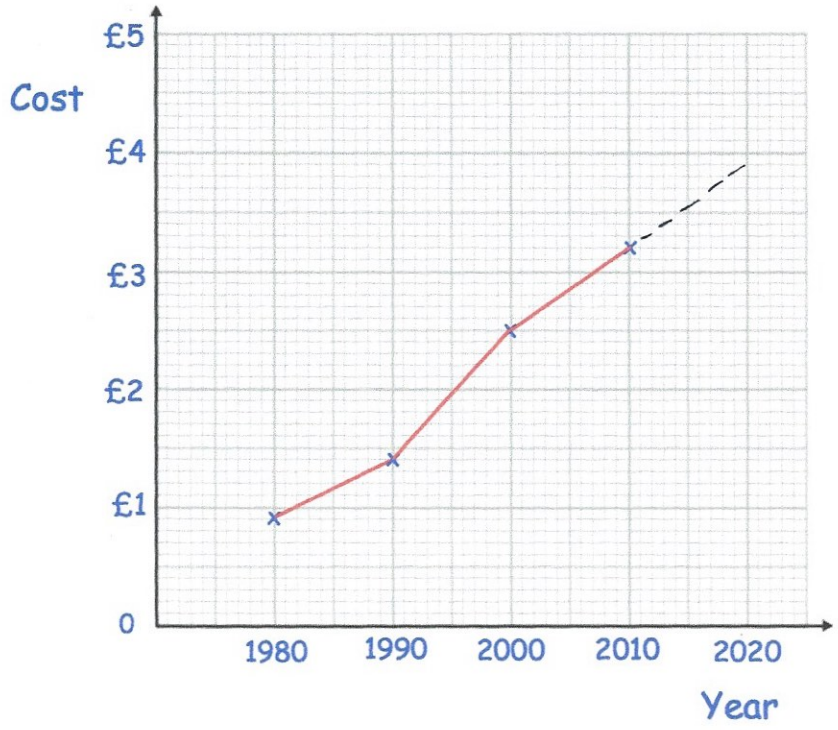
(1)

(c) Find the probability of scoring an odd number

5/12

(1)

45. The line graph below shows the cost of a coffee in a shop over 30 years.



(a) In which year was the price £2.50?

2000

(1)

(b) How much was the price of a coffee in 1990?

£1·40

(1)

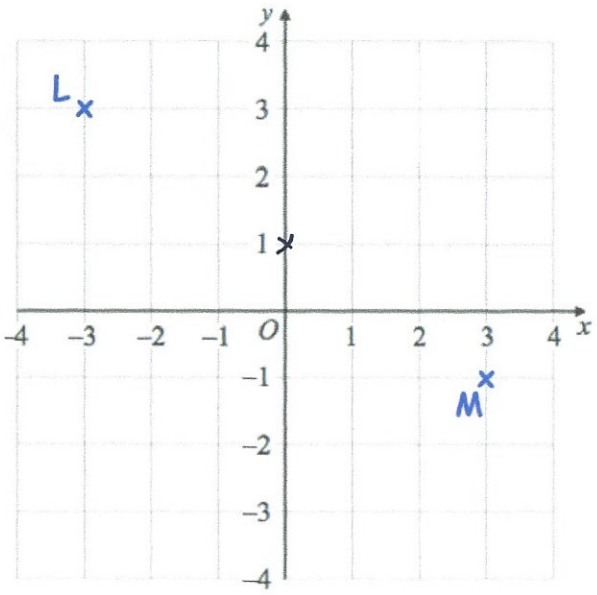
Carlos says that the price of a coffee will be £6 by 2020.

Do you agree with Carlos?
Explain your answer.

No, it seems very unlikely to increase by £2·80 in 10 years.

(2)

46.



(a) Write down the coordinates of L.

(−3 , 3)

(1)

(b) Write down the coordinates of M.

(3 , −1)

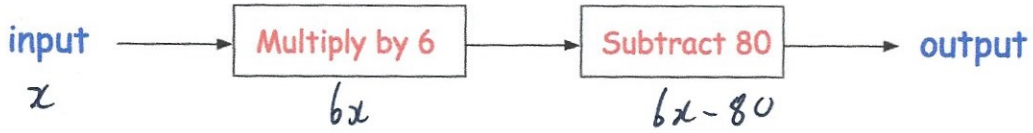
(1)

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

(0 , 1)

(2)

47. This function machine multiplies a number by 6 and then subtracts 80.



The input is the same as the output.
Find the input.

$6x - 80 = x$

$5x = 80$

$x = 16$

16

(3)

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48. Simplify $5w - 6w + 3w$

$2w$

(1)

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49. (a) Simplify $5c \times 3c$

$15c^2$

(1)

(b) Simplify $w \times w \times w$

w^3

(1)

50. $w^{12} \div w^y = w^6$

(a) Find the value of y

y = 6

(1)

$(m^x)^3 = m^9$

(b) Find the value of x

x = 3

(1)

---

51. Expand $2a(3-a)$

$6a - 2a^2$

(1)

---

52. (a) Factorise $21 - 7a$

$7(3-a)$

(1)

(b) Factorise fully $6x^2 + 9x$

$3x(2x+3)$

(2)

53. Factorise $x^2 - 10x + 16$

$(x-8)(x-2)$

(2)

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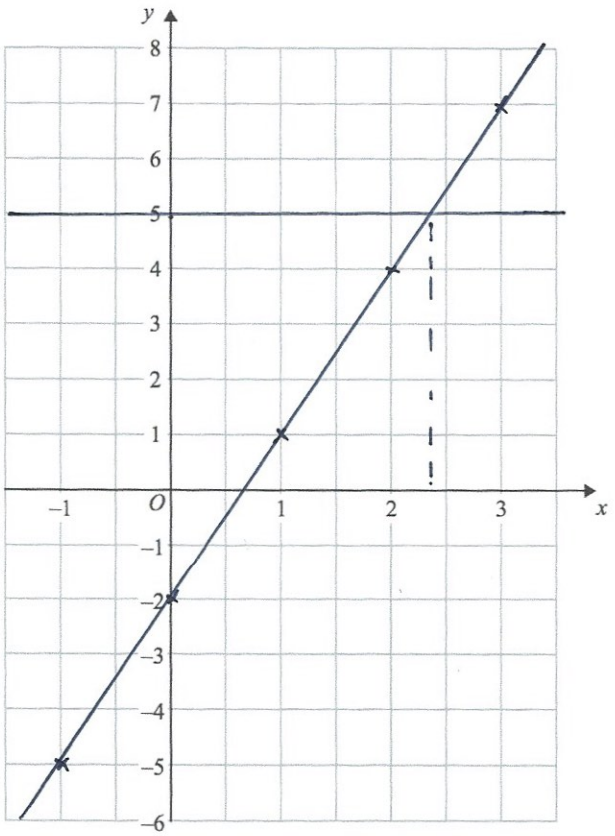
54. (a) Complete the table of values for $y = 3x - 2$

x	-1	0	1	2	3
y	-5	-2	1	4	7

(2)

(b) On the grid, draw the graph of $y = 3x - 2$ for the values of x from -1 to 3



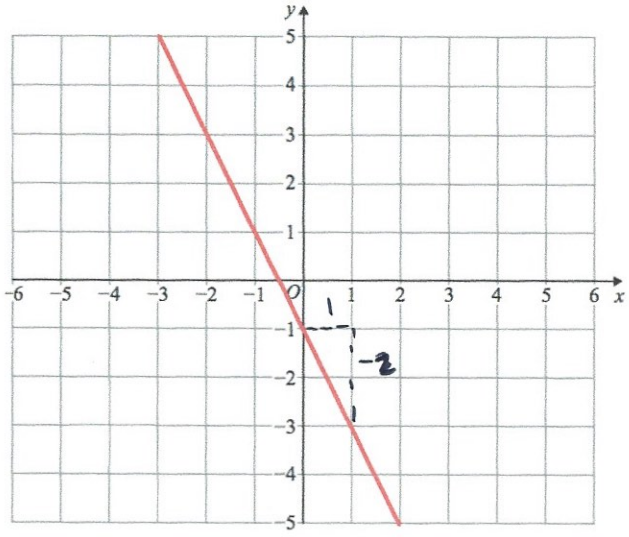
(2)

(c) Use your graph to estimate the value of x when y = 5

x = 2·4

(1)

55. A straight line L is shown on the grid.

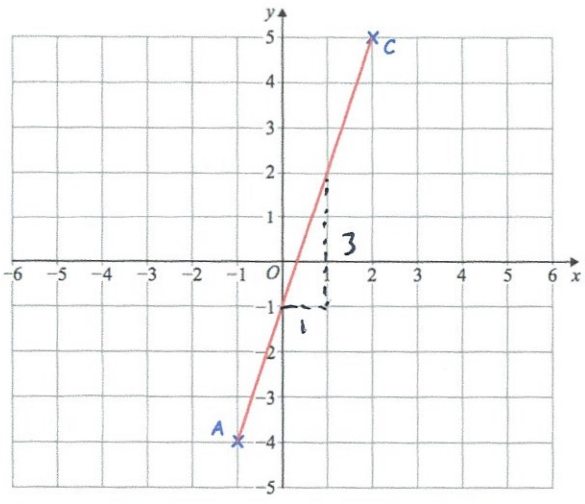


Work out the equation of line L

$y = -2x - 1$

(3)

56.



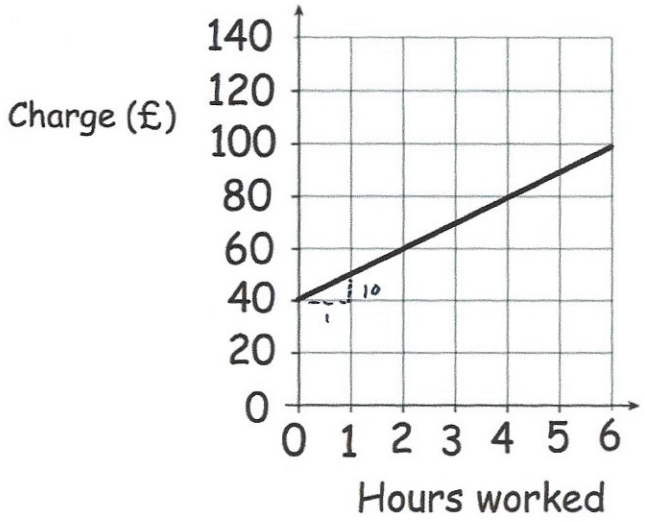
A is the point with coordinates (–1, –4)
C is the point with coordinates (2, 5)

Find the gradient of the line AC.

3

(2)

57. Dara is a plumber.
The graph shows how much he charges for each job.



(a) How much does Dara charge for a job lasting 3 hours?

£70

(1)

(b) How much does Dara for each hour?

£10

(1)

58. Solve the simultaneous equations

$2x + 2y = 14$ $\times 3$

$5x - 3y = 19$ $\times 2$

$10x - 6y = 38$

$6x + 6y = 42$

$16x = 80$

$x = 5$

$10 + 2y = 14$

$2y = 4$

$y = 2$

x = 5 y = 2

(3)