Name:

GCSE Maths 2022
Edexcel Foundation Paper 2
Set B
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.

Guidance

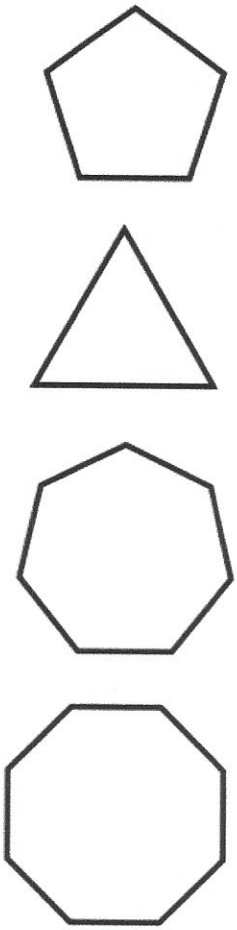
1. Read each question carefully.
2. Check your answers seem right.
3. Always show your workings

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 1
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. Below is a list of shapes and their names.



Pentagon

Octagon

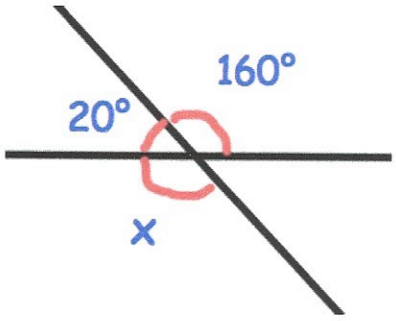
Heptagon

Triangle

Match each shape to the correct name.

(4)

2. Shown below are two straight lines.

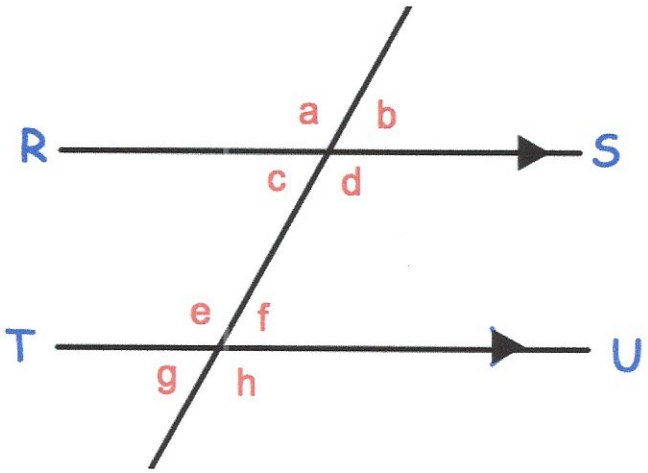


Find the size of the angle x.

160 °

(1)

3. On the diagram RS is parallel to TU.



Which angle is vertically opposite to angle g ?

f

.....

(1)

4.

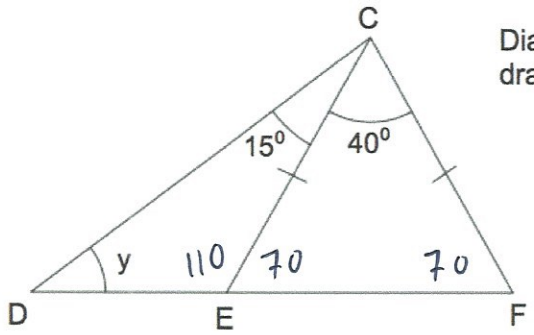


Diagram not drawn accurately

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

Find the size of the angle marked y.

15 + 110 = 125

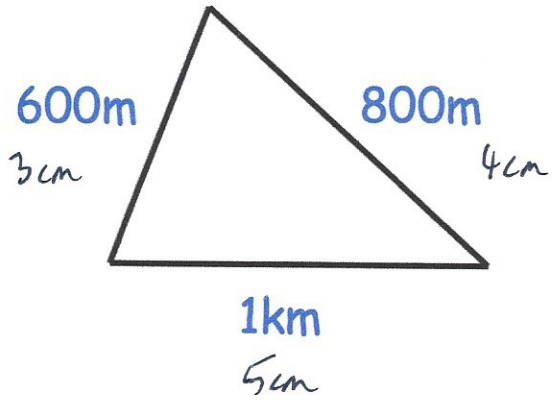
180 - 125 = 55

55

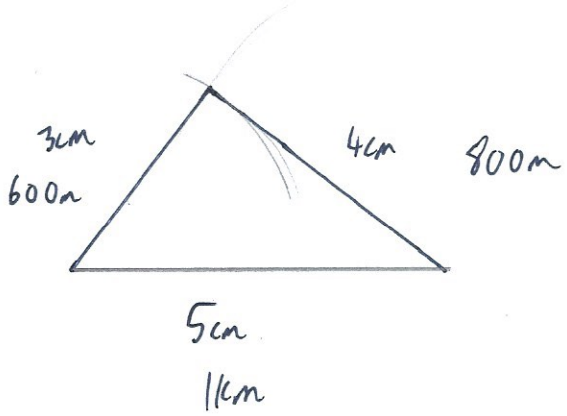
.....°

(4)

5.

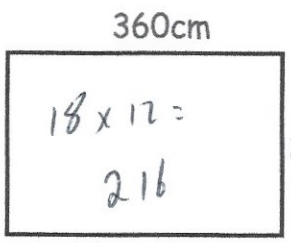


Using the scale of 1cm = 200m, construct a scale drawing of the triangle shown.



(4)

6. Mrs Rodgers is tiling her bathroom wall.
The bathroom wall is 360cm long and 240cm high.
Each tile is 20cm by 20cm



360 ÷ 20 = 18

240 ÷ 20 = 12

The tiles are sold in boxes of 6.
Each box costs £8.
How much will it cost Mrs Rodgers to buy enough tiles for her bathroom wall?

216 ÷ 6 = 36

36 x 8 = £288

£ 288

(4)

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7. Olivia does her Maths, French and History homework
It takes her a total of three hours. 3 x 60 = 180

She spends 70 minutes on her History homework.
Olivia spends 15 minutes less on her Maths homework than her History homework. 55 mins

How many minutes does Olivia spend doing her French homework?

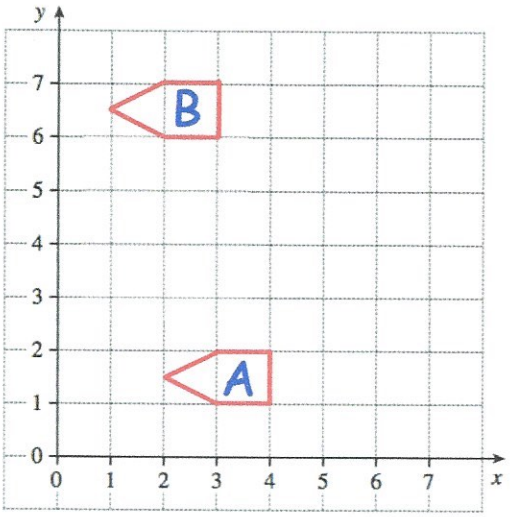
180 - 70 = 110

110 - 55 = 55

55 mins

(3)

8.

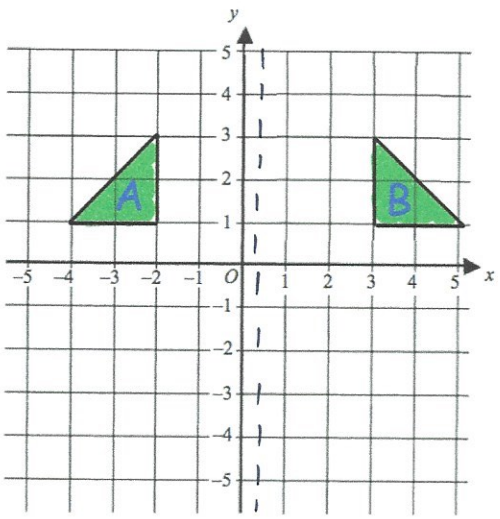


Write down the translation vector that would take A to B.

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

(1)

9.

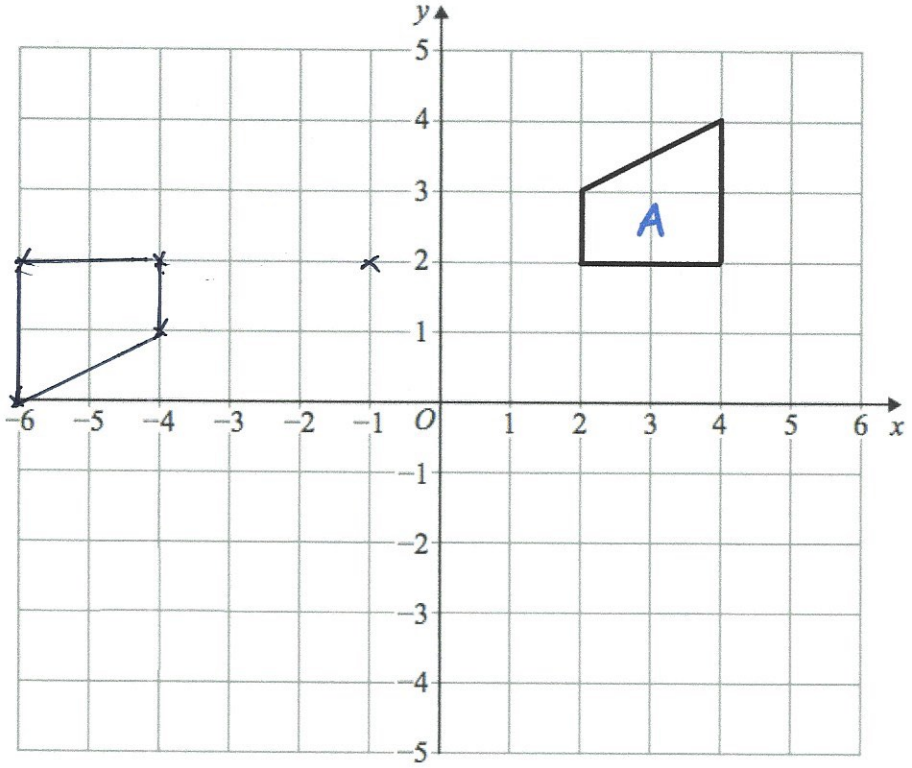


Describe fully the single transformation that maps triangle A onto triangle B.

Reflection in the line $x = 0.5$

(2)

10.



Rotate shape A 180° about centre (–1, 2)

(3)

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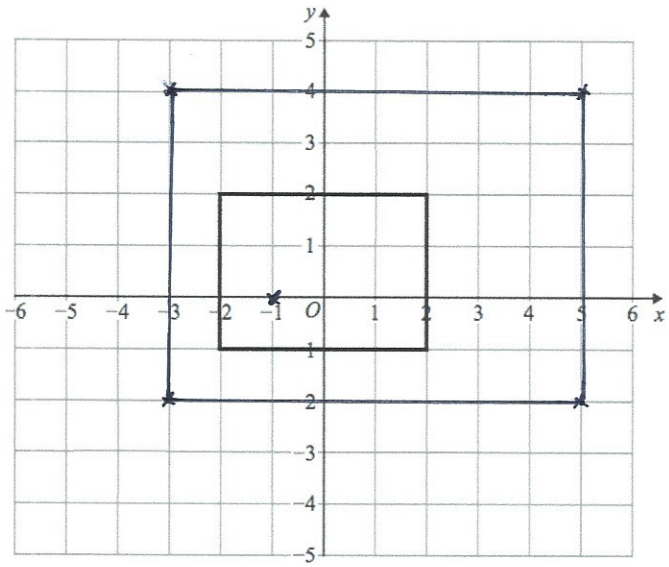
11. Shown below is a rectangle drawn on a coordinate grid.



Enlarge the rectangle by scale factor 2, using centre of enlargement (–1, 0).

(3)

12. (a) Draw an arc on the circle.

(1)

(b) Draw and shade in a segment of the circle.

(1)

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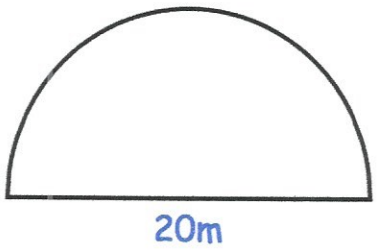
13. A semi-circle has diameter 20cm.



Calculate the perimeter of the semi-circle.

$\pi \times 20 = 62.8318...$

$62.8318... \div 2 = 31.4159...$

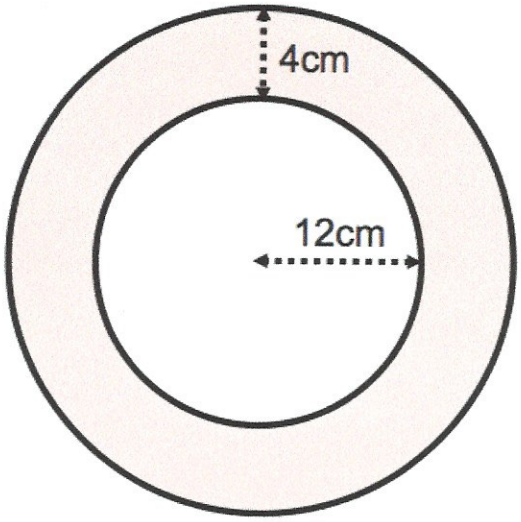
$31.4159... + 20$

51.416

.....m

(2)

14. Shown below is a circular photo surrounded by a frame.



The photo has radius 12cm.
The frame has width 4cm.

Work out area of the frame.
This area is shaded in the diagram.

$\pi \times 16^2 = 804.2477193$

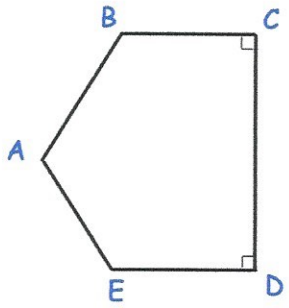
$\pi \times 12^2 = 452.3893421$

351.8583772

351.86 cm²

(3)

15.



(a) Which line is parallel to ED?

BC

.....

(1)

(b) Which line is perpendicular to ED?

CD

.....

(1)

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16. (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 significant figure.

100

.....

(1)

17. 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)

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18. Martin is walking from Antrim to Randalstown.

Work out the distance from Antrim to Randalstown.

$1\frac{3}{4} + 3\frac{1}{3}$

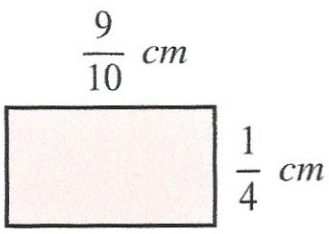
$\frac{7}{4} + \frac{10}{3}$

$\frac{21}{12} + \frac{40}{12} = \frac{61}{12}$

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

(3)

19.



Find the area of this rectangle.
Include suitable units.

$\frac{9}{10} \times \frac{1}{4} = \frac{9}{40}$

$\frac{9}{40}$ cm^2

(3)

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20. Jaymin is cutting lengths of string from a roll that is $9\frac{1}{3}$ metres long.

Each length of string is $\frac{1}{9}$ metres long.

How many lengths of string can Jaymin cut from the roll?

$9\frac{1}{3} \div \frac{1}{9}$

$\frac{28}{3} \div \frac{1}{9}$

$\frac{28}{3} \times \frac{9}{1} = \frac{252}{3}$

84

(2)

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21. Find the reciprocal of 0.32

$0.32 = \frac{8}{25}$

$\frac{25}{8}$

$\frac{25}{8}$ (or $3\frac{1}{8}$)

(1)

22. Write these numbers in order of size.
Start with the smallest number.

$\frac{7}{10}$ $\frac{3}{5}$ $\frac{8}{15}$ $\frac{2}{3}$

$\frac{21}{30}$ $\frac{18}{30}$ $\frac{16}{30}$ $\frac{20}{30}$

$\frac{8}{15}$ ..... $\frac{3}{5}$ ..... $\frac{2}{3}$ ..... $\frac{7}{10}$ .....

(2)

23. (a) Write 0.4 as a percentage.

40 .....%

(1)

(b) Write 0.07 as a percentage.

7 .....%

(1)

24. Candles normally cost £6 each.

Two websites have special offers

(A) Corbettmaths Candles	(B) Candles'R'us
Buy 3 get 1 free	20% off

Laura wants to buy 30 candles.

Which website should Laura use?

(B) $30 \times 6 = 180$

10% = £18

20% = £36

180 - 36 = £144

(A)

7 lots of buy 3 & 1 free

28 + 2 more

pay for 23 & 7 free.

$23 \times 6 = £138$ ✓

Corbettmaths Candles

(4)

25. The value of a painting rises from £120,000 to £192,000.

Work out the percentage increase in the value of the painting.

$\frac{72000}{120000} \times 100$

60 %

(3)

26. The value of a car decreases by 7.2% each year.
When bought the car cost £6200.

(a) Work out how much the car will be worth after one year.

$6200 \times 0.928 = £5753.60$

£ 5753.60
(2)

(b) How many years will it take the car to have a value less than £4000?

$6200 \times 0.928^{\wedge}$

5 years → £4267.09
6 years → £3959.86

6 years
(2)

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27. Felicity has two boxes of counters, each with an equal ratio of black and white beads.

In box A, 54 of the beads of black and 36 are white.
There are 162 white beads in box B.

How many beads are there in the two boxes in total?

Box A W : B
36 : 54
2 : 3

Box B 162 : y

$162 \div 2 = 81$
$81 \times 3 = 243$ black

$36 + 54 + 162 + 243$

495
(4)

28. James is going on holiday in New York.
James changes £400 into dollars ($).

The exchange rate is £1 = $1.38

Work out how many dollars ($) James will receive.

400 × 1.38

$552

(2)

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29. Shown is a list of locations and their elevations

	Location	Elevation
	Coachella	-22 metres
	Bern	542 metres
	Jericho	-258 metres
*	Baku	-28 metres
	Lake Eyre	-16 metres
*	Tokyo	17 metres

Work out the difference in Baku's and Tokyo's elevations

17 - -28 = 45

28 + 17 = 45

45 m

(2)

30. Write the following numbers in order of size.
Start with the smallest number.

0.08 0.25 0.81 0.2 0.68

0.08, 0.2, 0.25, 0.68, 0.81

(1)

31. Nigel measures the time, t seconds, to complete a race as 14.8 seconds correct to the nearest tenth of a second.

Write down the error interval for t.

$14.75 \leq t < 14.85$

(2)

32. 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)

33. Bramley apples cost £4.60 for a 3kg bag at Supervalue supermarket.
The same type of apples cost £11.40 for a 7.5kg bag at Nixon's supermarket.

Where are the apples the best value for value?
You must show your working.

Supervalue
$4.60 \div 3 = £1.5\dot{3}$ per kg

Nixon's
$11.40 \div 7.5 = £1.52$ per kg ✓

Nixon's is better value

(4)

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34. Work out the value of $\sqrt[3]{9261}$

21

(1)

---

35. James asked his friends their favourite colour.

Green	Blue	Red	Green	Blue	Blue
Green	Red	Blue	White	Blue	Green
Red	Green	Blue	Red	Blue	Green

Complete the frequency table for his results.

Colour	Tally	Frequency
Blue	𝍸 ||	7
White	|	1
Red	||||	4
Green	𝍸 |	6

(2)

36. 100 students study one language at a college.
The students are either in Year 12 or Year 13.

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

54 of the people are in Year 12.
20 of the 29 people who study Spanish are in Year 13.
31 people study German.
15 Year 13 students study French.

Work out the number of Year 12 students who study German.

	Year 12	Year 13	total
French	25	15	40
Spanish	9	20	29
German	20	11	31
Total	54	46	100

20

(4)

37. 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.

$\frac{1}{12}$

(1)

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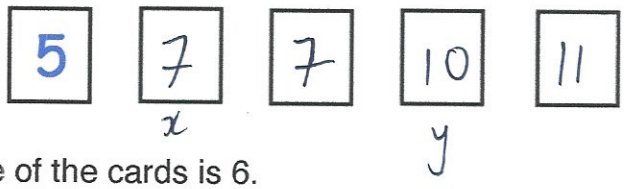
38. Shown below are five cards which are arranged in order from smallest to largest



The range of the cards is 6.
The median of the cards is 7.
The mean of the cards is 8. $\times 5 = 40$

Work out the 4 missing numbers.

$40 - 5 - 7 - 11 = 17$

$x + y = 17$

$x = 7$, $y = 10$

or $x = 6$, $y = 11$

7, 7, 10, 11

or 6, 7, 11, 11

(4)

39. The frequency table shows information about the amount of money withdrawn from an ATM by people on one day.

Money Withdrawn	Frequency
£10	16
£20	19
£30	4
£40	3
£50	6
£60	2

Write down the modal amount of money wthdrawn.

£ 20

(1)

40. The table shows the ages of an under-21 rugby squad.

Age	Frequency
18	5
19	5
20	9
21	4

Find the median age.

18 18 18 18 18 19 19 19 19 19 20 20 20 20 20 20 20 20 21 21 21 21

20

(1)

41. There are 40 houses in Greenvale and 60 houses in Redville.

The mean number of cars per house in Greenvale is 1.25
The mean number of cars per house in Redville is 1.75

Work out the mean number of cars per house in both villages.

$40 \times 1.25 = 50$

$60 \times 1.75 = 105$

155

$155 \div 100 = 1.55$

1.55

(3)

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42. The time for ten students to complete a race is below.

Time (t seconds)	Frequency	ft
$20 < t \leq 40$ 30	3	90
$40 < t \leq 60$ 50	5	250
$60 < t \leq 80$ 70	2	140
		480

Work out an estimate for the mean time taken.

$480 \div 10$

48

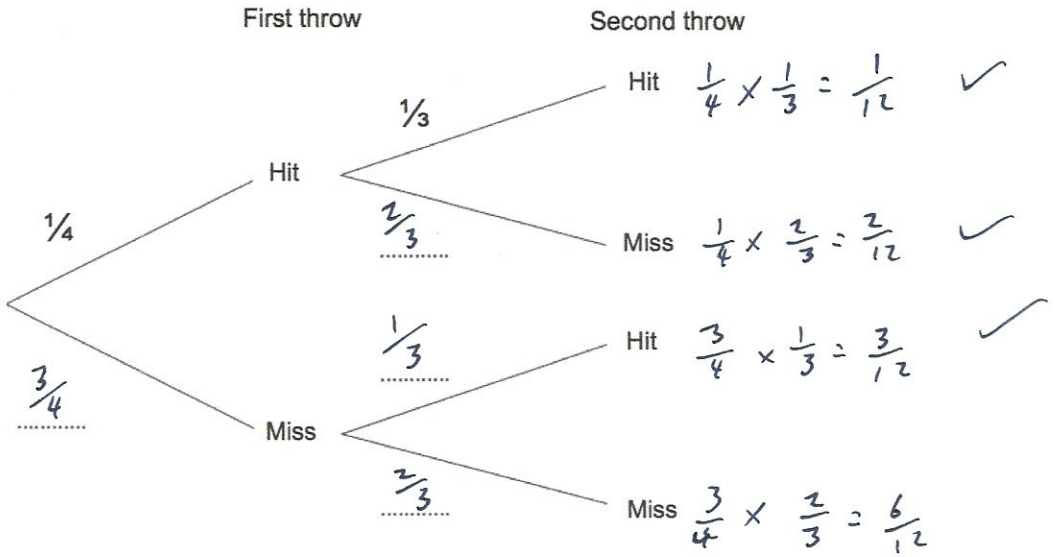
.....seconds

(4)

43. Jennifer is playing darts.
She throws two darts aiming for a Bullseye.

The probability Jennifer hits the Bullseye on her first throw is ¼.
The probability she hits the Bullseye on her second throw ⅓.

(a) Complete the tree diagram.



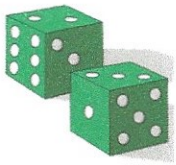
(b) Work out the probability Jennifer hits the Bullseye at least once.

$\frac{1}{12} + \frac{2}{12} + \frac{3}{12} = \frac{6}{12}$

$\frac{1}{2}$

(2)

44. Two fair six sided dice are rolled.



The numbers on the two dice are **multiplied** together to give a score.

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

Dice 2 \ Dice 1	1	2	3	4	5	6
1	1	2	3	4	5	6
2	2	4	6	8	10	12
3	3	6	9	12	15	18
4	4	8	12	16	20	24
5	5	10	15	20	25	30
6	6	12	18	24	30	36

(2)

(b) Find the probability of a score of 12

$\frac{4}{36}$ $\frac{1}{9}$

.....

(1)

(c) Find the probability of a score of 10 or more

$\frac{19}{36}$

.....

(2)

(d) Find the probability of an even number

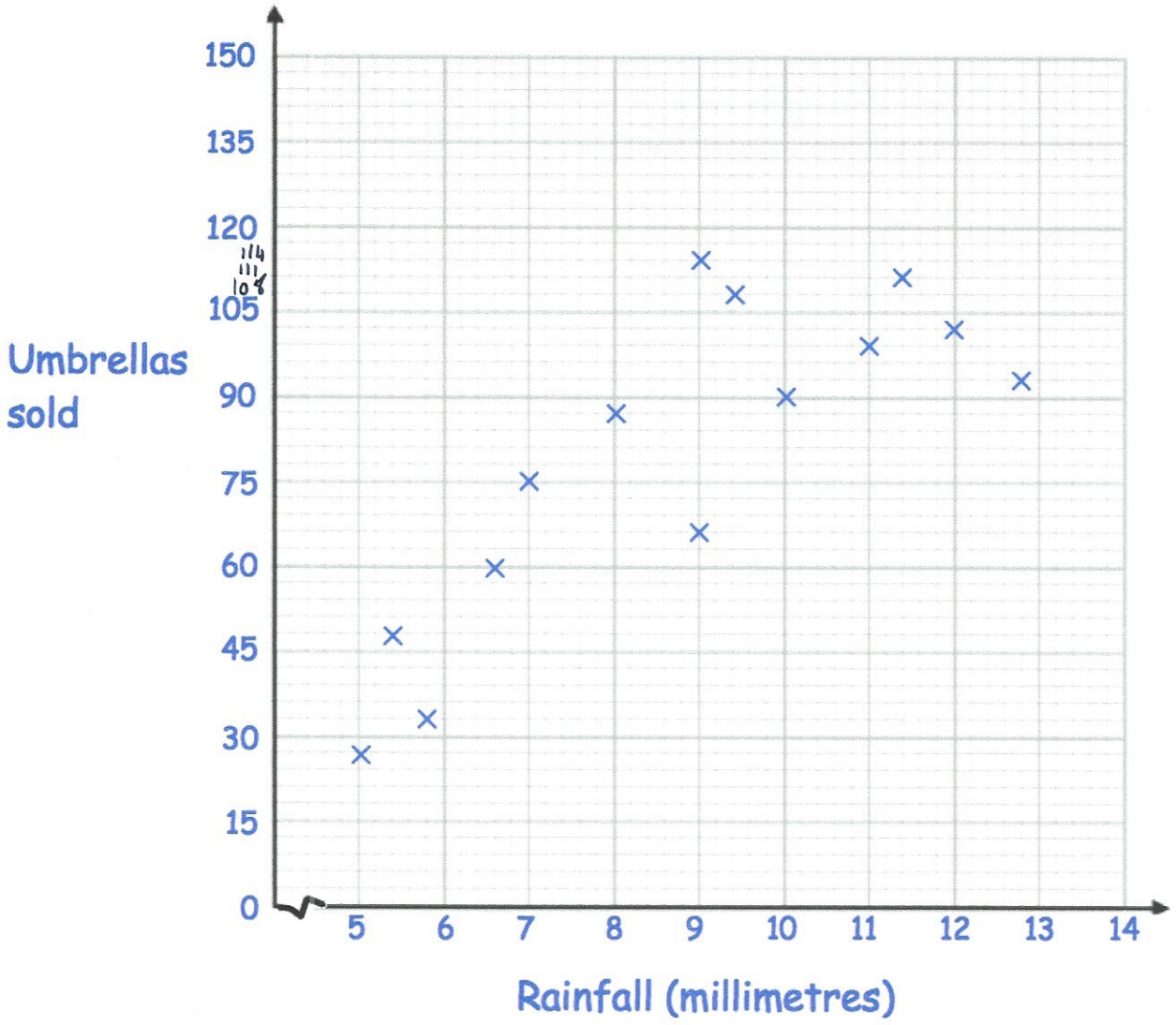
$\frac{27}{36}$ $\frac{3}{4}$

.....

(2)

45. A shop sells umbrellas.

The scatter graph shows information about the number of umbrellas sold each week and the rainfall that week, in millimetres.



(a) Describe the relationship between the rainfall and umbrellas sold.

As the rainfall increases, so does the number of umbrellas sold – positive correlation

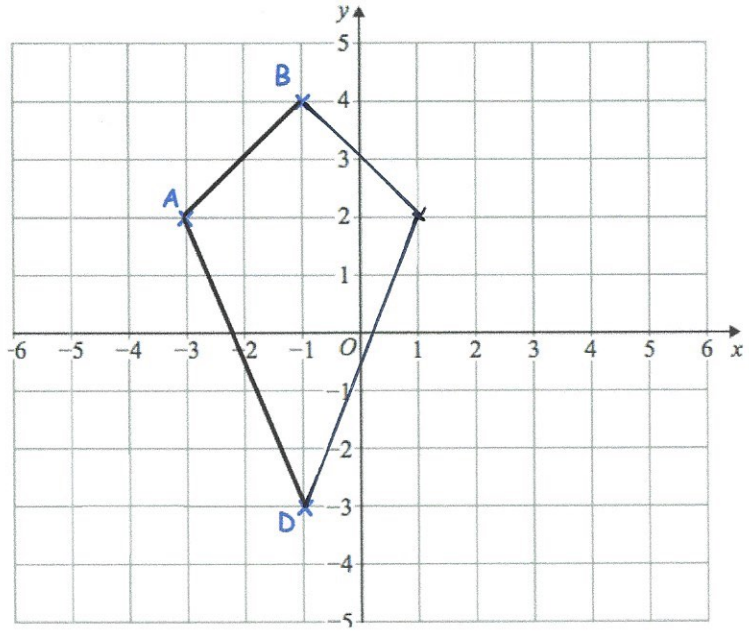
(1)

(b) What is the most number of umbrellas sold in one week?

114

(1)

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

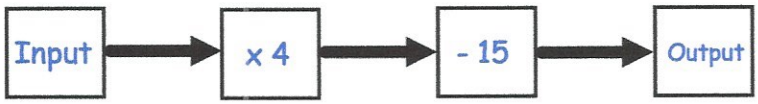


ABCD is a kite.
Complete the kite and write down the coordinates of C.

(1 , 2)

(2)

47.



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

$10 \times 4 = 40$
$40 - 15 = 25$

25

(1)

(b) Work out the input, when the output is 35.

$35 + 15 = 50$
$50 \div 4 = 12.5$

12.5

(1)

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

$4x - 15 = x$
$3x = 15$
$x = 5$

$x = 5$

(1)

48. Simplify $7a + 2b + a - 3b$

$8a - b$

(2)

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49. Simplify $3y \times 9y^2$

$27y^3$

(1)

---

50. (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)

51. Expand $4x(3x - 7)$

$12x^2 - 28x$

$12x^2 - 28x$

(2)

52. Factorise fully

$9m^2 - 12mp$

$3m(3m - 4p)$

$3m(3m - 4p)$

(2)

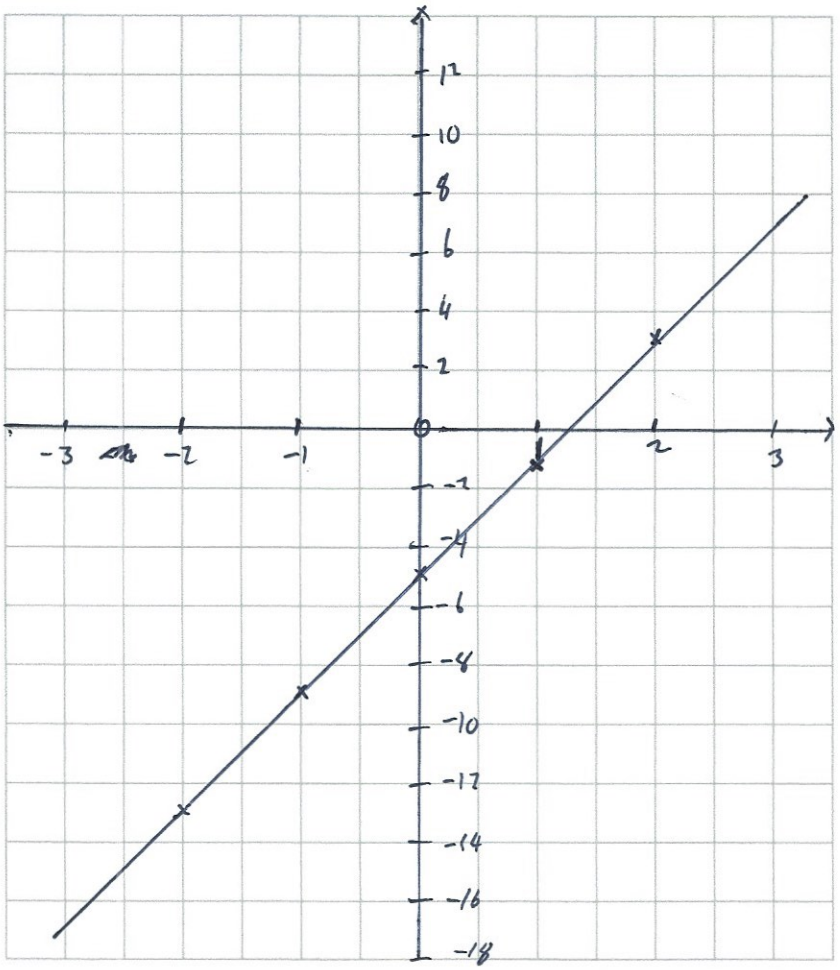
53. Factorise $x^2 - 2x - 24$

$(x - 6)(x + 4)$

(2)

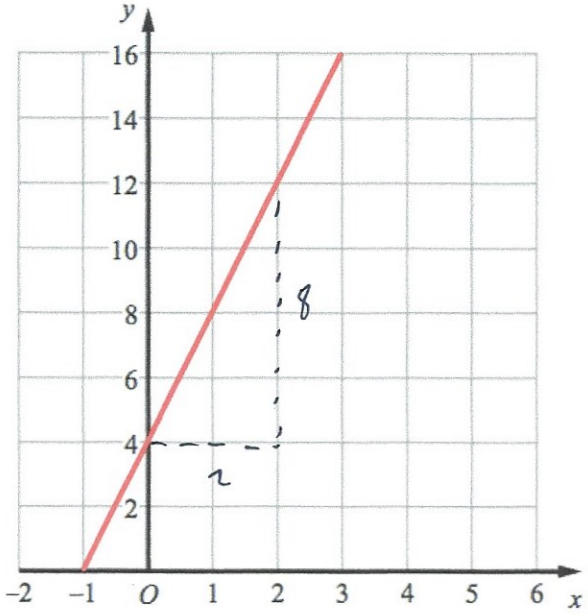
54. On the grid, draw $y = 4x - 5$ for values of x from –2 to 2.

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



(4)

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



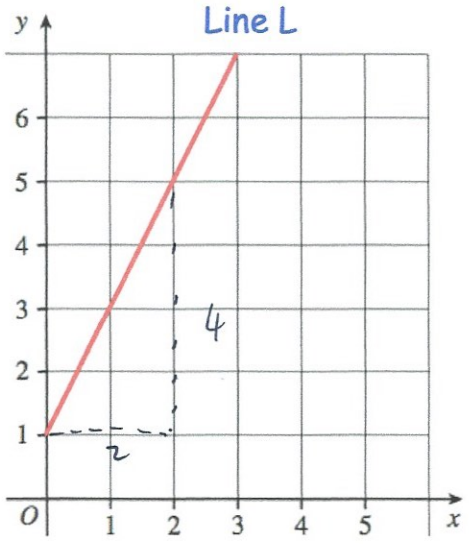
$\frac{8}{2} = 4$

Work out the equation of line L

$y = 4x + 4$

(3)

56.



Line L is drawn on the grid.

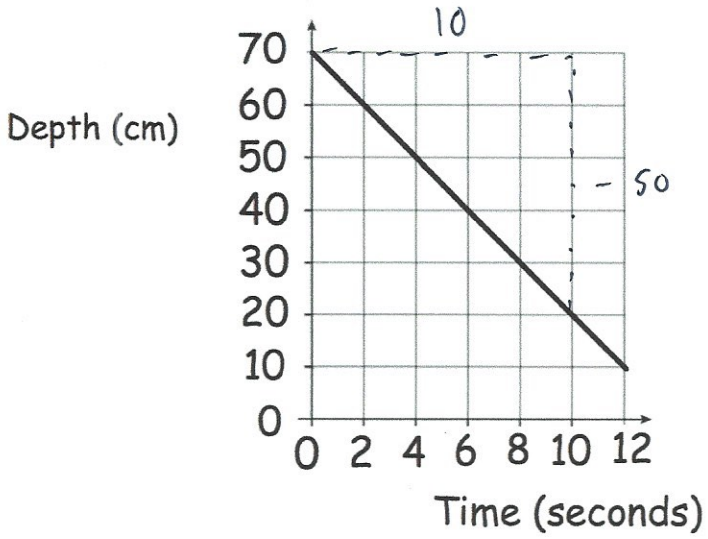
Work out the gradient of Line L.

$\frac{4}{2} = 2$

2

(2)

57. Beth has a full padding pool.
The graph shows the depth of water in the pool (d cm) over time (t seconds)



The graph intersects the vertical axis at 70

(a) What does this represent?

The depth of the full paddling pool.

(1)

(b) Find the gradient of the line.

$\frac{-50}{10} = -5$

-5

(2)

(c) Explain what the gradient represents.

The change of depth of the paddling pool every second. 5cm decrease every second.

(1)

58. Solve the simultaneous equations

$3x + 5y = 1 \quad \times 3$
$2x - 3y = 7 \quad \times 5$

Do not use trial and improvement

$9x + 15y = 3$
$10x - 15y = 35$
$19x = 38$
$x = 2$

$6 + 5y = 1$
$5y = -5$
$y = -1$

x = 2 y = −1

(4)