GCSE EQUIVALENT
FOUNDATION MATHEMATICS
NON-CALCULATOR

Sample Paper 4

NAME .....

SURNAME .....

SCHOOL/UNIVERSITY APPLIED FOR .....

CONTACT NUMBER .....

DATE .....

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Total	

Time Allowed 1 Hour

1 In addition to this paper you may need
2 A ruler
3 Coloured pens (for drawing graphs)

Instructions to Candidates

1 Write your name and other details in the spaces above
2 Answer all questions in the spaces provided
3 Additional sheets may be used, but must be attached.
4 Calculators **MUST NOT BE USED** in this paper

Information to candidates

1 The marks available are given at the end of each question and part questions eg (2)
2 There are 17 question in this paper

Examiners initials
Percentage %

Advice to candidates

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Equivalency Testing Office 72 Walton Gardens, Hutton, Essex, CM13 1EP
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Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working

You must NOT use a calculator.

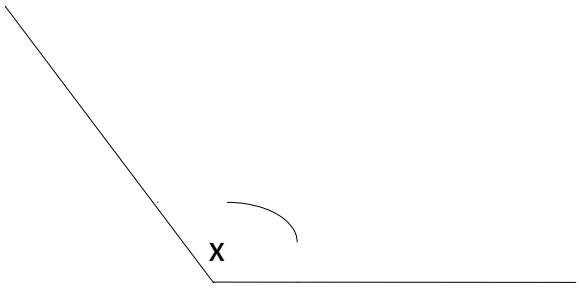
1.

Measure the length of the line AB.
Give your answer in centimetres.

A B

..... cm
(1)

Measure the size of angle x.



..... ^{0}
(1)

Write down the correct name for angle x.

Answer .....
(1)

(Total 3 marks)

2. Daniel buys
One loaf of bread costing £1.18
One tub of spread costing 94p
Two jars of strawberry jam.

Daniel pays with a £5 note.
He gets 30p change.
Work out the cost of one jar of jam.

£.....

(2)

(Total 2 marks)

---

3. Susan recorded the maximum temperature and the minimum temperature on each of the six days in January.
The table shows her results.

	Mon.	Tue.	Wed.	Thurs.	Fri.	Sat.
Maximum temperature	1^0 C	3^0 C	2^0 C	0^0 C	3^0 C	4^0 C
Minimum temperature	-4^0 C	-2^0 C	-4^0 C	-5^0 C	-3^0 C	-4^0 C

Work out the difference between the maximum temperature and the minimum temperature Susan recorded.

.....^{0} C

(1)

The minimum temperature on Sunday was 5^0 C higher than the minimum temperature on Saturday.
Work out the minimum temperature on Sunday.

.....^{0} C

(2)

(Total 3 marks)

---

4. Margaret is going to have a meal.
She can choose one starter and one main course.

Menu

Starter	***Main course***
Pate	*Beef*
Melon	*Salmon*
Ham	*Lasagne*

Write down all the possible combinations Margaret can choose.

.....

(2)

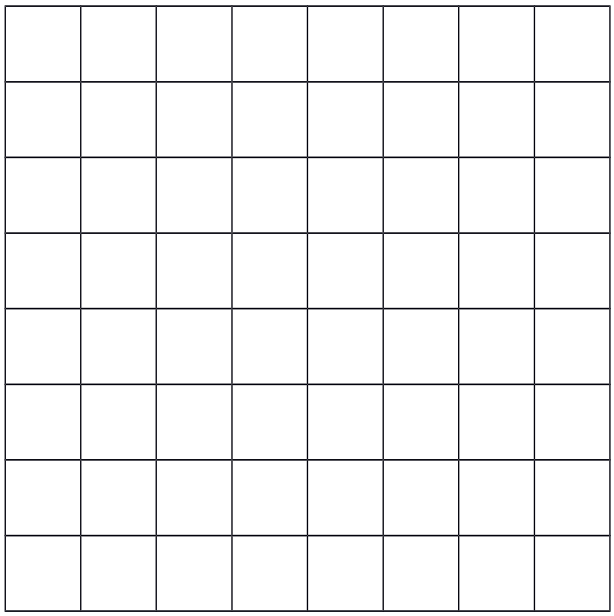
Write down the probability that Margaret will choose the Melon and the Lasagne.

.....

(1)

(Total 3 marks)

5.



On the grid, draw an isosceles triangle. (1)

Using the grid estimate the area of your triangle.

(2)

(Total 3 marks)

6. Write down the value of √81

.....

(1)

Work out the value of $5^2 + 2^3$

.....

(2)

(Total 3 marks)

7. Here is part of a train time table from Birmingham to Leicester.

Birmingham	0 23	06 53	07 23	07 53
Coleshill	06 35	07 05	07 35	08 05
Nuneaton	07 00	07 22	07 51	08 22
Hinckley	----	07 29	07 58	08 29
Leicester	07 17	07 48	08 17	08 48

A train leaves Birmingham at 06 53
How many minutes does it take to get to Hinckley.

.....minutes.

(1)

Sylvia wants to catch a train from Coleshill to Leicester.
She needs to be in Leicester before 08 30
Write down the latest train she can catch.

.....

(1)

A train leaves Leicester at 07 27 for Stansted Airport.
The train should take 2 hours 28 minutes to go from Leicester to Stansted Airport. What time should the train get to Stansted Airport.

.....

(2)

(Total 4 marks)

8. The diagram shows a rectangle and a square. (diagrams not accurately drawn)

The perimeter of the rectangle is the same as the perimeter of the square.

Work out the length of one side of the square.

.....cm

(2)

From your answer in the first question, work out the area of the square.

.....cm^2

(Total 3 marks)

9. Debbie, Sarah and Wendy did a maths test.
The total for the test was 40 marks.
Debbie got 16 out of 40
Sarah got 35% of the 40 marks.
Wendy got 3/8 of the 40 marks.

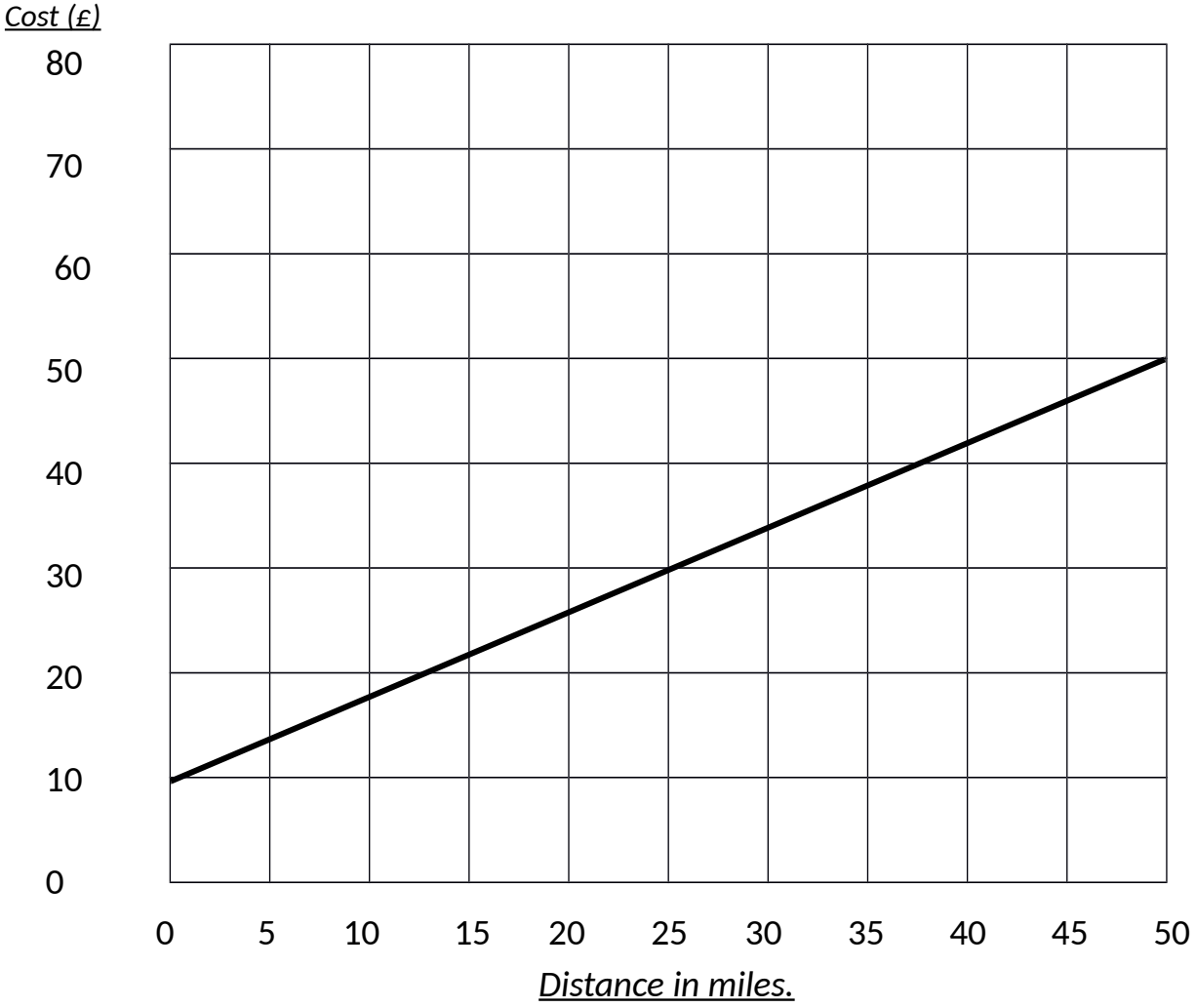
Who got the highest mark?
You must show all your working.

.....

(Total 4 marks)

10. Bill uses his van to deliver parcels.

For each parcel Bill delivers there is a fixed charge plus £1.00 for each mile.
You can use the graph to find the cost of having a parcel delivered by Bill.



How much is Bill's fixed charge?

£.....

(1)

Ed uses a van to deliver parcels.
For each parcel Ed delivers it costs £1.50 for each mile and NO fixed charge.

Use this information and your graph to work out at what distance will the both charge the same for delivering a parcel.

.....miles.

(3)

(Total 4 marks)

11. The stem and leaf diagram shows some information about the speeds of 25 cars.

2	9
3	1 3 5 6 7 8 8 9
4	2 3 3 4 5 6 8 8 9 9
5	1 2 4 5 6
6	0

How many of the 25 cars has a speed of more than 50 miles per hour.

.....

(1)

Find the median speed.

.....

(1)

Work out the range of the speeds.

.....

(2)

(Total 4 marks)

12. Expand $3(2y - 5)$

.....

(1)

Factorise completely $8x^2 + 4xy$

.....

(2)

Simplify $3m + n - m + 4n - 2m$

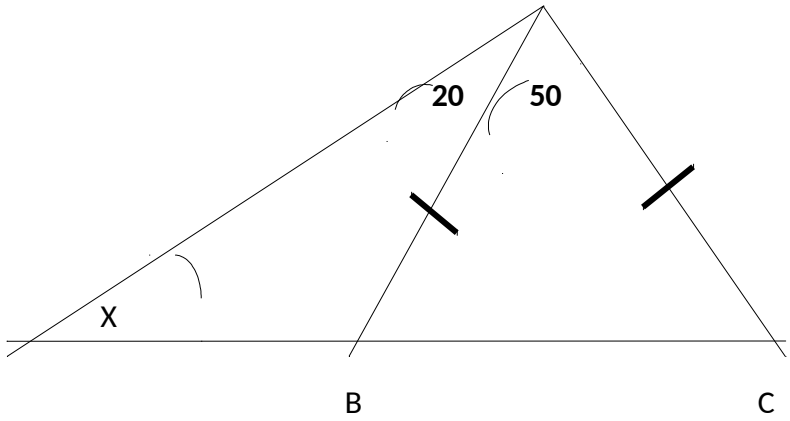
.....

(1)

(Total 4 marks)

13. (diagram not accurately drawn)

D



ABC is a straight line. DB = DC

Angle BDC = 50^0 and ADB = 20^0

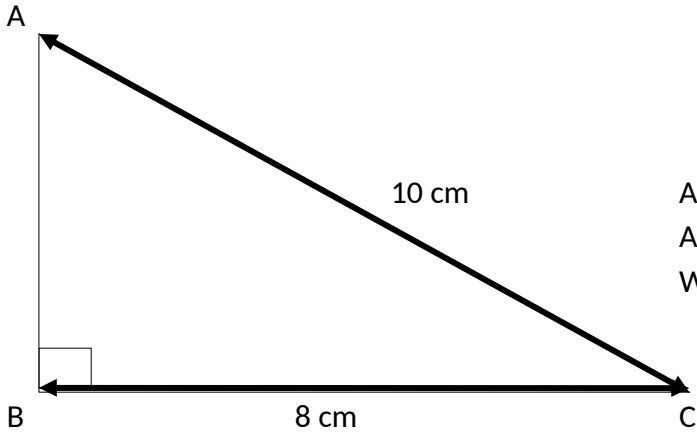
Work out the size of angle X.

Use the diagram to fully explain your answer.

X = ……^{0}

(Total 4 marks)

14. (diagram not accurately drawn)



ABC is a right angled triangle

AC = 10 cm BC = 8 cm

Work out the length of AB.

AB = ……cm

(Total 4 marks)

15. Here are the ingredients needed to make 12 shortcakes.

Makes 12 shortcakes.

50g of sugar

200g of butter
200g of flour
10ml of milk

If Elizabeth uses 25ml of milk how many shortcakes does she make?

.....

(2)

Robert has the following ingredients.

500g of sugar
1000g of butter
1000g of flour
500ml of milk

Work out the greatest number of shortcakes Robert can make.

.....

(2)

(Total 4 marks)

16. Here are the first five terms of a number sequence.

3, 7, 11, 15, 19

Write down the next two numbers in the sequence.

..... and .....

(1)

Write down an expression, in terms of *n*, for the *nth* term of the sequence.

.....

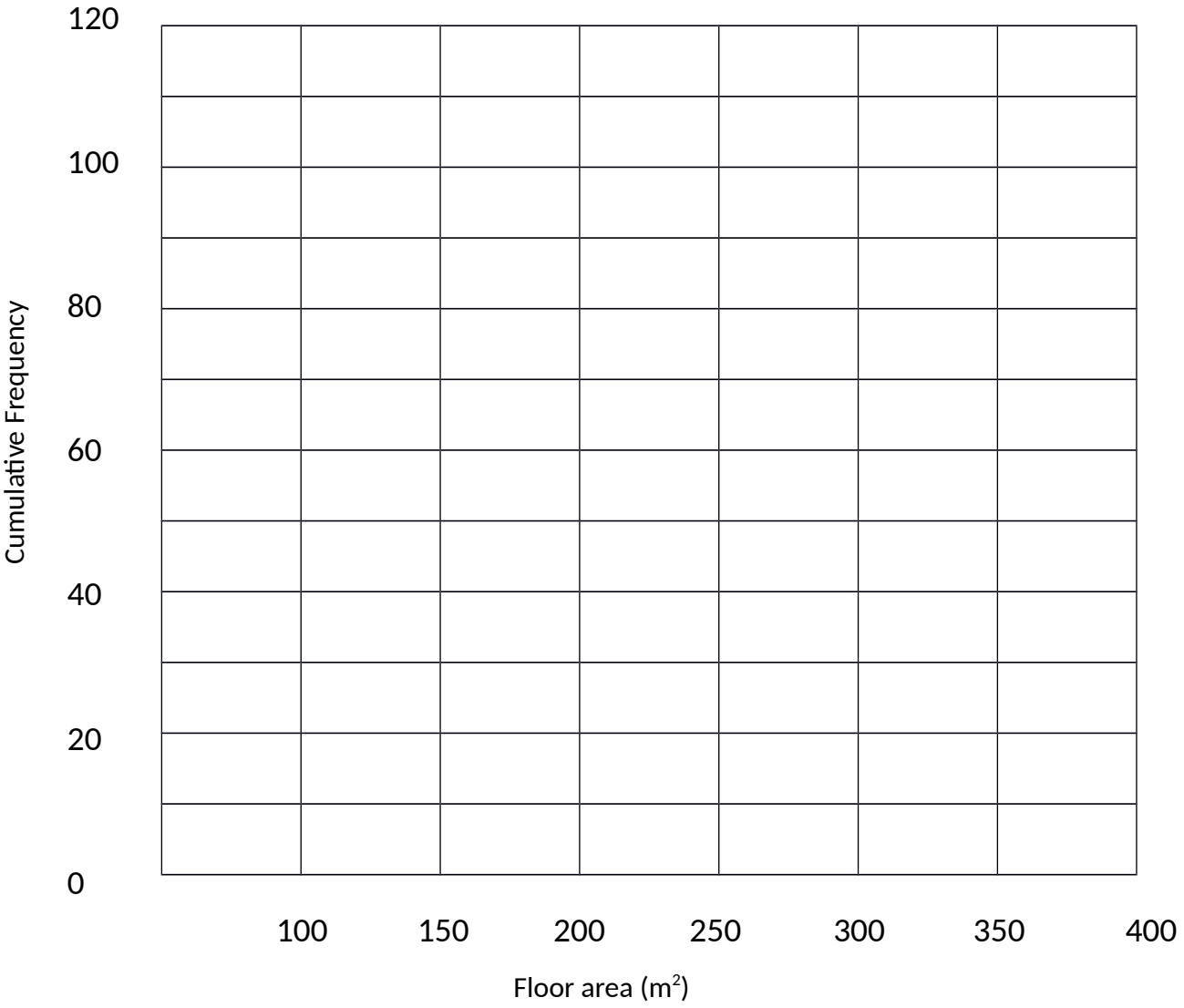
(2)

(Total 3 marks)

17. A survey is made of all 120 houses on an estate.
The floor area , in m^2, of each house is recorded.
The results are shown in the cumulative frequency table.

Floor area in m^2	Cumulative Frequency
0 ≤ A < 100	4
100 ≤ A < 150	20
150 ≤ A < 200	49
200 ≤ A < 250	97
250 ≤ A < 300	114
300 ≤ A < 350	118
350 ≤ A < 400	120

On the grid draw a cumulative frequency graph for the table. (2)



Use your cumulative frequency graph to estimate the inter quartile range of the floor areas of the houses.

……m^2

(Total 5 marks)

Total marks for this paper 60

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You must write down all stages in your working

1. Here are a random set of number.

17 16 4 21 8 60 15

Write down a square number.

.....

(1)

Write down a multiple of 7

.....

(1)

Write down a factor of 30

.....

(1)

(Total 3 marks)

2. Jim's pay is £180.00 each week.
Jim asks his boss for an increase of £20 a week.
Jim's boss offers him a 10% increase.
Work out the two increases in pay.
What is the difference between the two values. (you must show all your working)

(Total 4 marks)

3. There are 3 counters in a bag.
One counter is red.
One counter is blue.

One counter is green.
Mike takes at random a counter from the bag. He puts the counter back in the bag.
Write down the probability that the counter Mike takes is red.

.....
(1)

Ellie takes at random a counter from the bag.
List all the possible combinations of the two counters that Mike and Ellie can take.

.....
(1)

Work out the probability that Mike takes a green counter and Ellie takes a red counter.

.....
(2)
(Total 4 marks)

4. Here is a list of numbers.

4 8 5 9 10 5 6 3 4

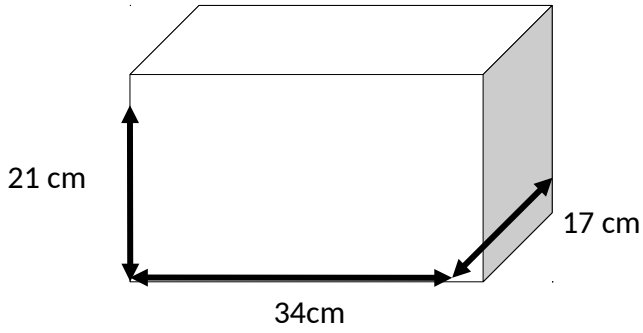
Work out the median.

.....
(2)

Work out the mean.

.....
(2)
(Total 4 marks)

5. Here is a cuboid. **(diagram not accurately drawn)**



Work out the volume of the cuboid.

.....cm^3

(Total 2 marks)

---

6. You can use this rule to work out the total charge for hiring a concrete mixer.

Total charge = £32 plus £8.50 each day.

Mark hired a concrete mixer for 6 days.
Work out the total charge.

£.....

(2)

Joe also hired a concrete mixer.
The total charge was £108.50
How many days did Joe hire the concrete mixer for.

..... days

(2)

(Total 4 marks)

---

7. $y = 4x + c$

$x = 7.5$

$c = 5.4$

Work out the value of y.

.....

(2)

$y = 4x + c$

$y = 18.8$

$c = -2.4$

Work out the value of x.

.....

(2)

(Total 4 marks)

---

8. Use a calculator to work out.

$$\frac{\sqrt{21.5}}{5.8 + 2.36}$$

Give your answer to 3 decimal places.

.....

(Total 2 marks)

---

9. Hannah has a biased coin.

She is going to throw the coin only once.

If the probability of getting a head is 0.7

Write down the probability of getting a tail.

.....

(1)

Hannah is now going to throw this coin 170 times.

Work out an estimate for the number of heads Hannah will get.

.....

(2)

(Total 3 marks)

---

10. Irene invested £3500 for 3 years at 2.5% per annum simple interest.
Work out the total amount of interest Irene earned.

(Total 3 marks)

11. Find all the factors of 30.

.....

(2)

Find the highest common factor (HCF) of 24 and 30

.....

(2)

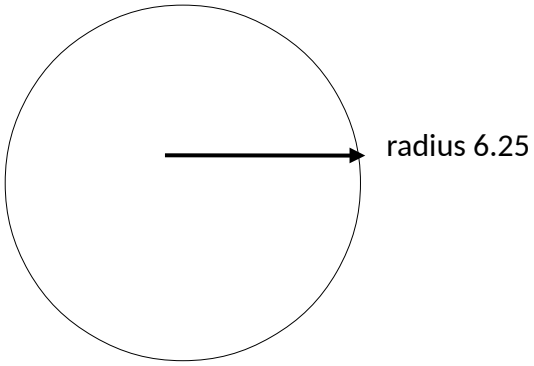
Find the lowest common multiple (LCM) of 4, 5 and 6.

.....

(1)

(Total 5 marks)

12. The diagram shows a circle of radius 6.25 cm. **(diagram not accurately drawn)**



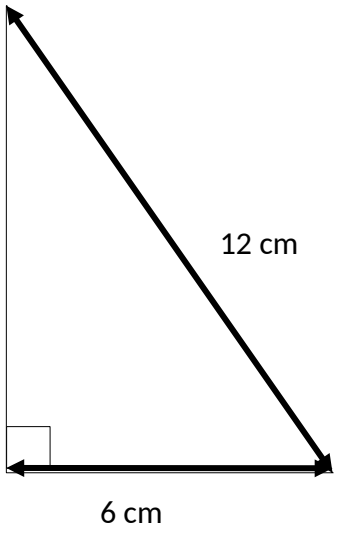
Calculate the area of the circle.

.....cm^2

(Total 2 marks)

13. **(diagram not accurately drawn)**

The diagram shows a right-angled triangle.



Calculate the area of the right-angled triangle.
Give your answer to 2 decimal places.

(Total 4 marks)

14. Harry needs a permit to fish in his local river.

Last year, Harry paid £140 for a permit.
This year the cost of the permit has increased by 12%
Work out the cost of the permit for this year.

(Total 2 marks)

15. Melissa is 13 years old.
Becky is 12 years old.
Daniel is 10 years old.

Melissa, Becky and Daniel share £28 in the ratio of their ages.
Work out how much each should have.

Melisa £ .....
Becky £ .....
Daniel £ .....
(3)

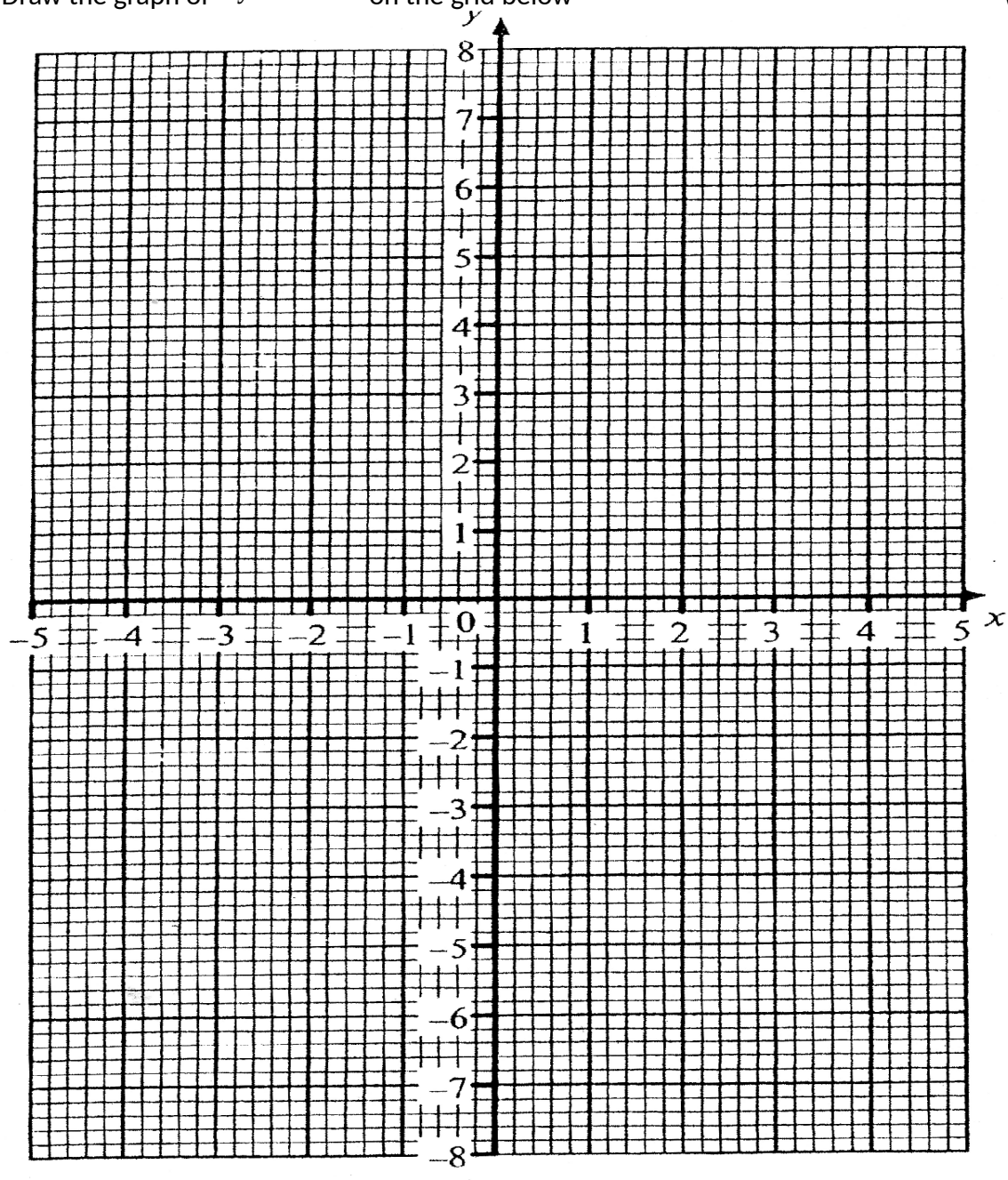
Becky gives a third of her share to her mother.
How much should Becky have now.

£ .....
(2)
(Total 5 marks)

16. Complete this table of values for $y=3x-1$.

X	–2	– 1	0	1	2	3
y						

Draw the graph of $y=3x-1$ on the grid below (2)



Use your graph to find

The value of *x* when *y* = 3.5

x = ……

(1)

The value of *y* when *x* = - 2

y = ……

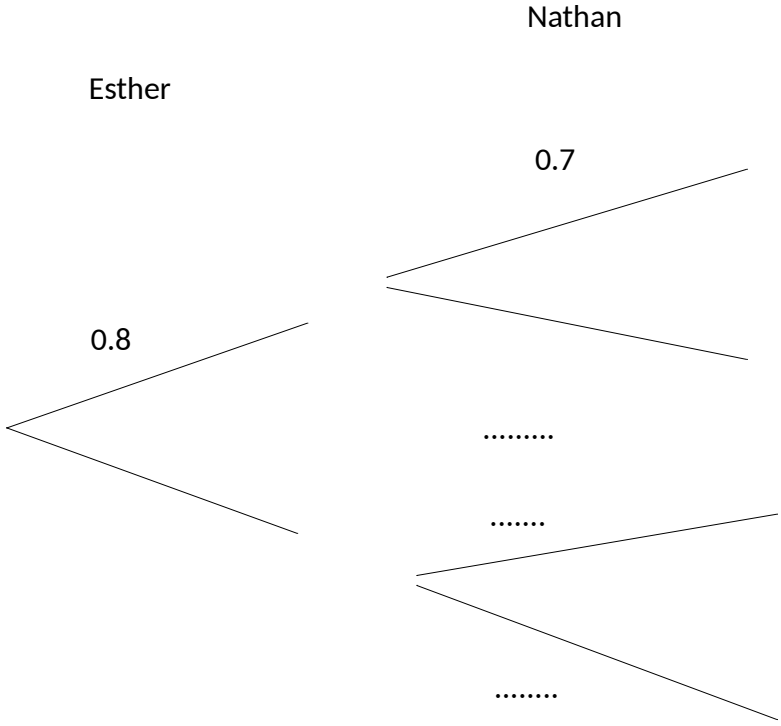
(1)

(Total 5 marks)

17. Esther and Nathan are going to a café for a meal.

The probability that Esther will order a pizza is 0.8.
The probability that Nathan will order a pizza is 0.7.

Complete the tree diagram.



(2)

Work out the probability that Esther and Nathan will both order a pizza.

.....

(2)

Work out the probability that only one of them will order a pizza.

.....

(2)

(Total 6 marks)

Total marks for this paper 62

Answer Sheet Sample Paper 5

	NON-CALCULATOR		CALCULATOR
1	Length 7.5 cm Angle size 128 Obtuse angle	**1**	Square number 4 or 16 Multiple of 7 is 21 A factor of 30 is 60
2	£1.18 + 0.94 = £2.12 £5.00 - £2.12 = £2.88 £2.88 - .30 = £2.58 £2.58 ÷ 2 = £1.29	**2**	10% of £180.00 = £18.00 = £198.00 £20.00 increase = £200 Difference = £2.00
3	Difference = 9 degrees Saturday Temp. = + 1 degree	**3**	Probability = 1/3 Red, Blue. Red, Green. Blue, Green Blue, Red. Green, Red. Green, Blue Green counter = 1/3
4	Pate, Beef. Pate, Salmon. Pate, Lasagne. Melon, Beef. Melon, Salmon. Melon, Lasagne. Probability 1/9	**4**	Median number = 6 Mean = 6
5	Draw Isosceles triangle Estimate the area of the triangle drawn	**5**	Volume of cuboid = L x W x H 21 x 34 x 17 = 12138 cm^3
6	(a) 9 (b) 33	**6**	6 x 8.5 + 32 = £83.00 108.5 – 32 = £76.5 £76.5 ÷ 8.5 = 9 days
7	36 Mins. 07.35 09.55	**7**	4 x 7.5 + 5.4 = 35.4 18.8 = 4x – 2.4 18.8 + 2.4 = 4x = 21.2 So x = 5.3
8	Length of side of square is 5 cm Area of the square is 25cm^2	**8**	√21.5 = 4.63681 5.8 + 2.36 = 8.16 4.63681 ÷ 8.16 = 0.568
9	16/40 = 40% = Debbie 14/40 = 35% = Sarah 15/40 = 37.5% = Wendy Debbie.	**9**	Probability of getting a tail = 0.3 170 x 0.7 = 119
10	Fixed Charge £10.00 Ed's delivery charge £20.00	**10**	2.5% of £3500 = £87.5 £87.5 x 3 = £262.5
11	6 cars more than 50 mph Median Speed 44 mph 60 – 29 = 31	**11**	All factors of 30 are 1,2,3,5,6,10,15,30 HCF of 24 and 30 = 6 LCM of 4,5 and 6 is 60
12	6y – 15 4x(2x + 2y) 5n	**12**	Area = πr^2 Area = π x 6.25^2 Area = 122.66 cm^2
13	Angles B and C = 65° ABD = 115 Angle A = 180 – 20 – 115 = 45°	**13**	Height of triangle = 10^2 - 6^2 100 – 36 = 64 √64 = 8 Area = 8 x 6 ÷2 =24 cm^2
14	AB = 13^2 – 5^2 169 – 25 = 144 √144 = 12	**14**	12% of £140 = £16.8 £140 + £16.8 = £156.80
15	a) 30 shortcakes b) 60 shortcakes	**15**	£28 ÷ 35 = £0.80 13 x £.080 = £10.40 12 x £0.80 = £9.60 10 x £0.80 - £8.00 1/3 of £9.60 = £3.20 Becky now has £6.40

16	23 and 27 4n – 1	**16**	Complete table of results. -7 -5 -1 2 5 8 Plot points and draw straight line graph
17	Draw Cumulative Frequency graph. Upper quartile = 240 Lower quartile = 160 Inter quartile range = 80	**17**	Complete tree diagram with 0.8 and 0.2, 0.7 and 0.3 on both branches Both order Pizza 0.8 x 0.7 = 0.56 Neither order Pizza 0.2 x 0.3 = 0.06