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| For Examiner’s Use |
| Pages | Mark |
| 3 |  |
| 4 – 5 |  |
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| TOTAL |  |

 | General Certificate of Secondary EducationFoundation Tier |

**4365/2F**

**Mathematics (Linear) B**

**Paper 2 Calculator**

**FF**

**Practice Paper 2012 Specification (Set 2)**

**For this paper you must have:**

* a calculator
* mathematical instruments.
* mathematical instruments.

You may use a calculator.

You may use a calculator.



Time allowed

* 1 hour 45 minutes

Instructions

* Use black ink or black ball-point pen. Draw diagrams in pencil.
* Fill in the boxes at the top of this page.
* Answer **all** questions.
* You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
* Do all rough work in this book. Cross through any work that you do not want to be marked.
* If your calculator does not have a π button, take the value of π to be
3.14 unless another value is given in the question.

Information

* The marks for questions are shown in brackets.
* The maximum mark for this paper is 105.
* The quality of your written communication is specifically assessed

in questions 9(a), 18(a) and 20.

These questions are indicated with an asterisk (🟎).

* You may ask for more answer paper, graph paper and tracing paper.
These must be tagged securely to this answer booklet.
* Use a calculator where appropriate.

Advice

* In all calculations, show clearly how you work out your answer.

**4365/2F**

**Formulae Sheet: Foundation Tier**

**Area of trapezium** = (*a* + *b*)*h*

**Volume of prism** = area of cross-section × length

*h*

*a*

*b*

length

cross-

section

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| Answer **all** questions in the spaces provided.Do not writeoutside thebox |
| **1** Shape *ABCDEF* is shown on a centimetre grid.*F**E**D**C**B**A***1 (a)** Measure the distance between *B* and *D*. Answer .................................................. cm (*1 mark*) **1 (b)** Write down a line that is parallel to *AB*. Answer ........................................................ (*1 mark*) **1 (c)** Write down a line that is at right angles to *DE*.Answer ........................................................ (*1 mark*) **1 (d)** Work out the area of the shape *ABCDEF*. State the units of your answer. ............................................................................................................................................... ............................................................................................................................................... ...............................................................................................................................................Answer ....................................................... (*3 marks*) **6** |
| **2 (a)** Here is a centimetre grid.Do not writeoutside thebox*y**x*   On the grid draw a circle with centre at (4, 5) and radius 4 cm. (*2 marks*) |

**14**

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| **2 (b)** The diagram shows a circle centre *O*.Do not writeoutside thebox*P**D**B**E**A**O**C**D* Here are four words. chord circumference diameter tangent  Complete each of the following sentences by choosing the correct word.

|  |
| --- |
| *CD* is a …………………………........... of the circle. |
| Point *P*  lies on the ……………………. of the circle. |
| *AB*  is a …………………………........... of the circle. |
| *ED* is a …………………………........... of the circle. |

 (*3 marks*)**5** |

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| **3** Ann, Elinor and Robin play football for the school team.Do not writeoutside thebox **3 (a)**  Robin scored 8 goals. Draw the bar for Robin on the chart.  Ann Elinor RobinNumber ofgoals scored (*1 mark*) **3 (b)**  How many goals did they score altogether? ............................................................................................................................................... ...............................................................................................................................................Answer ..................................................... (*2 marks*) **3 (c)** The bar chart shows information about the results of their matches.Do not writeoutside theboxNumber ofmatches Win Draw Loss A win scores three points. A draw scores one point. A loss scores no points. Work out the number of points the team scored. ............................................................................................................................................... ...............................................................................................................................................  Answer .................................................... (*3 marks*)**Turn over for the next question****6** |

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| **4 (a)** Write down the mathematical name of each shape.Do not writeoutside thebox  (*2 marks*) **4 (b)** Draw a kite on this grid.

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(*1 mark*) |

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| **5 (a)** The diagram shows a grid.Do not writeoutside thebox

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  What fraction of the grid is shaded? Give your answer in its simplest form. ............................................................................................................................................... ...............................................................................................................................................Answer ........................................................ (*3 marks*) **5 (b)** This diagram shows a different grid.

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 What percentage of the grid is shaded? ............................................................................................................................................... ...............................................................................................................................................  Answer ....................................................% (*2 marks*)**8** |

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| **6**  Here is a list of numbers.Do not writeoutside thebox2 9 20 28 32 43**6 (a)**  Write down the multiple of 7 from the list.Answer .............................................................. (*1 mark*) **6 (b)**  Write down the square number from the list.Answer .............................................................. (*1 mark)***7**  These are some factors of a number.2 3 4 6 9 12 The number is less than 50 What is the number? ...............................................................................................................................................Answer ........................................................... (*2 marks*)**8** Three different numbers add up to 90 All the numbers are even. The second number is twice the first number. The first number multiplied by the second number is equal to the third number. Work out the three numbers. ............................................................................................................................................... ...............................................................................................................................................  ............................................................................................................................................... ............................................................................................................................................... First number................................................................. Second number ........................................................... Third number................................................................ (*3 marks*)  |

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| 🟎**9 (a)** Andy downloads songs onto his mobile phone.Do not writeoutside thebox His phone has 128 MB of memory. Each song is 3.8 MB. How many songs can he download? ...............................................................................................................................................Answer ......................................................... (*2 marks*)**9 (b)** Andy has 500 minutes of free calls in February. Each minute above 500 minutes costs 15 pence.  The table shows the length of calls he made in the first three weeks of February.

|  |  |  |  |  |
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|  | **Week 1** | **Week 2** | **Week 3** | **Week 4** |
| **Length of calls** **(minutes)** | 135 | 96 | 211 |  |

 Andy can afford to pay £15 for calls in February. How many minutes of calls can he afford to make in Week 4? ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... ...............................................................................................................................................Answer ........................................... minutes (*4 marks*) **13** |

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| **10** The diagram shows a rectangle on a grid.Do not writeoutside thebox  Enlarge the rectangle by scale factor 2(*2 marks*)**5** |

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| **11** The diagram shows a cuboid.Do not writeoutside thebox 2 cm3 cm5 cm   Draw an accurate net of this cuboid on the centimetre grid.  (*3 marks*)**5** |
| **12** You are given that 11 stones = 70 kilogramsDo not writeoutside thebox **12 (a)** Draw a conversion graph on the grid.KilogramsStones(*2 marks*) **12 (b)** Use your graph to convert 30 kilograms to stones.Answer ................................. stones (*1 mark*) **12 (c)** Simon weighs 15 stones. He says this is 100 kilograms.  Is 100 kilograms more than or less than 15 stones? Show clearly how you decide. ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... (*3 marks*) |
| **13**  The table shows what Jane eats on one day of her diet.Do not writeoutside thebox

|  |  |  |
| --- | --- | --- |
| **Breakfast** | Two slices of toast with marmaladeA cup of coffee | 355 calories |
| **Lunch** | Tuna salad A glass of orange juice | 432 calories |
| **Supper** | Chicken breast with vegetablesA glass of lemonade | 805 calories |

 100 ml of milk has 55 calories. A glass holds 300 ml.  Jane drinks  of a glass of milk. Her target is to have no more than 1700 calories each day. Show that she almost meets her target. ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... (*4 marks)***Turn over for the next question****10****14**  David uses this formula to work out his weight loss in kilograms.Do not writeoutside thebox weight loss = **14 (a)** David plans to diet for 40 days. How many kilograms should he lose? ............................................................................................................................................... ...............................................................................................................................................Answer ........................................... kg (*2 marks*) **14** **(b)** His friend wants to lose 3.5 kilograms.  How many days should he diet? ............................................................................................................................................... ...............................................................................................................................................Answer ................................................ (*2 marks*) |
| **15 (a)** Complete the table for the graph of *y* = 2*x* – 1Do not writeoutside thebox

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *x* |  – 3  | – 2 | – 1 | 0 | 1 | 2 | 3 |
| *y* | – 7 |  | – 3 | – 1 | 1 |  | 5 |

  (*2 marks*) **15 (b)** On this grid, draw the graph of *y* = 2*x* − 1 for values of *x* from – 3 to 3*y**x*(*2 marks)***15 (c)** Show that the point (7, 13) lies on the graph of *y* = 2*x* – 1 ............................................................................................................................................... ...............................................................................................................................................(*1 mark*) **9****14** |

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| **16**  The perimeter of this rectangle is *P*. *w**l* **16 (a)** Write down a formula for *P*, in terms of *l* and *w*. Write your answer as simply as possible.  ...............................................................................................................................................Answer ........................................................... (*2 marks*)**16 (b)** The perimeter of a rectangle is 30 centimetres. Its length is 9.5 centimetres. Work out the area of the rectangle. ............................................................................................................................................... ............................................................................................................................................... ...............................................................................................................................................Answer ....................................................cm2 (*4* *marks*) |

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| **17**  Two rectangles are joined, as shown in the diagram.*C*Not drawnaccurately*D**B**A**x* Do not writeoutside thebox67o  *AB* and *CD* are straight lines. Work out the size of angle *x*. ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... Answer .......................................................degrees (3 *marks*)**Turn over for the next question****9** |

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| 🟎**18 (a)** Mark wants to book a holiday for two adults and one child.Do not writeoutside thebox He sees this advert.Adult price £340Child price £250**Special offer** 20% off   Mark has £750. Can he afford to book this holiday? Tick a box.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Yes |  |  | No |  |

 You **must** show your working. ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... (*5 marks*) **18 (b)** Mark wants to change £200 to Euros. The exchange rate in the UK is £1 = 1.15 Euro The exchange rate abroad is £1 = 1.13 Euro How much more money will Mark get by changing his money in the UK? Give your answer in Euros. ...............................................................................................................................................  ...............................................................................................................................................Answer .................................Euros (*3 marks*) |

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| **19** Danielle tosses a coin and rolls a dice.Do not writeoutside thebox If the coin shows heads, her score is three times the number on the dice. If the coin shows tails, her score is the square of the number on the dice. Show that there is a 50% chance of a score more than 10. ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... (*4 marks*) 🟎**20** *ABC*  is a triangle. 2*x*5*x**x*80°110°Not drawn accurately*A**C**B**x*   Show that *ABC* is an isosceles triangle. ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... ...............................................................................................................................................(*5 marks*) **17** |

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| **21**  Amy wants to know how often people in her village go out for a meal.Do not writeoutside thebox She writes this question and response section.How many times do you go out for a meal? Never 1 or 2 3 More than 4    **21 (a)**  Give **one** criticism of Amy’s question. ............................................................................................................................................... ...............................................................................................................................................(*1 mark*) **21 (b)**  Give **one** criticism of Amy’s response section. ............................................................................................................................................... ............................................................................................................................................... (*1 mark*)  |

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| **22**  Here are the results of a survey about how much money 60 people pay for their meal.Do not writeoutside thebox

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| --- | --- | --- | --- | --- |
| **Cost of a meal, *C*, (£)** | 0 < *C* < 10 | 10 < *C* < 20 | 20 < *C* < 30 | 30 < *C* < 40 |
| **Frequency** | 7 | 19 | 24 | 10 |

**22 (a)**  Draw a frequency polygon to represent the results.FrequencyCost, *C,* (£)(*2 marks*) **22 (b)**  What proportion of the 60 people spend more than £20 on the meal? ............................................................................................................................................... ...............................................................................................................................................Answer ................................. (*2 marks*)  **6** **10** |

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**Turn over ►**

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| **23** Divide 39 in the ratio 2 : 4 : 7Do not writeoutside theboxDo not writeoutside thebox ...............................................................................................................................................  ............................................................................................................................................... ...............................................................................................................................................Answer ......................... : ......................... : .........................(*3* marks) **24** Describe fully the **single** transformation that takes shape *A* to shape *B*.*y**B**A**x*   ............................................................................................................................................... ............................................................................................................................................... ...............................................................................................................................................(*3 marks*)  **10** |
| **25** Dan runs 15 marathons.Do not writeoutside thebox Here is a summary of his times.

|  |  |  |  |
| --- | --- | --- | --- |
| **Time, *t* , (minutes)** | **Frequency** |  |  |
| 200 < *t* < 220 | 1 |  |  |
| 220 < *t* < 240 | 5 |  |  |
| 240 < *t* < 260 | 6 |  |  |
| 260 < *t* < 280 | 2 |  |  |
| 280 < *t* < 300 | 1 |  |  |

   Ella also runs 15 marathons. Her mean time is 4 hours 17 minutes. Dan says that on average he is faster. Show that he is correct. ............................................................................................................................................... ............................................................................................................................................... ............................................................................................................................................... (*5 marks*)**11****END OF QUESTIONS** |

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