Parkfield School

Year 10 assessment 2

Marks \_\_\_\_\_

 53

60 minutes

**CALCULATOR**

**Q1.**

Here is a rectangle.

Work out the perimeter.

Circle your answer.

12 cm       24 cm       35 cm       70 cm

**(Total 1 mark)**

**Q2.**

Lucy works for 37 hours per week.

Her weekly wage is £303.40

She receives a pay increase of 25p per hour.

Work out her new weekly wage.

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Answer £ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(Total 2 marks)**

**Q3.**

Circle the number **greater** than –0.9

–0.901       –0.89       –0.91

**(Total 1 mark)**

**Q4.**

Simplify  8*x* − 3 + 6*x*

Circle your answer.

2*x* − 3       11*x*       5 + 6*x*       14*x* − 3

**(Total 1 mark)**

**Q5.**

Here is a list of ingredients needed to make 6 pancakes.

|  |  |
| --- | --- |
| Flour | 120 grams |
| Eggs | 2 |
| Milk | 210 millilitres |

(a)  Complete the list of ingredients needed to make 9 pancakes.

|  |  |
| --- | --- |
| Flour | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Eggs | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Milk | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**(3)**

(b)  Convert 210 millilitres to fluid ounces.

Use 1 fluid ounce = 28.4 millilitres

Give your answer to 1 decimal place.

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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ fluid ounces

**(2)**

**(Total 5 marks)**

**Q6.**

There are 240 cows on a farm.

(a)  On the farm,

number of bulls : number of cows = 1 : 30

How many bulls are there?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(1)**

(b)  Assume

the 240 cows produce milk for 10 months each year

each cow produces an average of 25 litres of milk per **day**.

Estimate the total milk production, in litres, of the 240 cows in one year.

You **must** show your working.

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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ litres

**(4)**

**(Total 5 marks)**

**Q7.**

An approximation for the value of *π* is given by

Use your calculator to show that this approximation is within 0.1 of 3.14

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**(Total 2 marks)**

**Q8.**

The first four terms of a linear sequence are

7       11       15       19

Circle the expression for the *n*th term.

*n* + 6       4*n* + 3       7*n* + 4       *n* + 4

**(Total 1 mark)**

**Q9.**

What does (A ∩ B) represent in P(A ∩ B)?

Circle your answer.

|  |  |
| --- | --- |
| A or B or both | A but not B |
|   |
| not A and not B | A and B |

**(Total 1 mark)**

**Q10.**

A company uses this formula to work out the cost, £*A*, of a taxi ride.

*A* = 4 + 1.8*m* + *b*

£4 is a fixed charge

*m* is the number of miles travelled

£*b* is a charge for booking online

(a)  Clare books a taxi online and travels 8 miles.

She pays £20 altogether.

How much is the charge for booking online?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Answer £ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(3)**

(b)  A different company

has a fixed charge of £3

charges £1.90 per mile

has no charge for booking online.

Write a formula for the cost, £*C*, of a taxi ride with this company.

Answer £ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(1)**

**(Total 4 marks)**

**Q11.**

Lee wants to draw the graph of *y* = *x* for values of *x* from –5 to 5

Here is his graph.

Make two **different** criticisms of his graph.

Criticism 1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Criticism 2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**(Total 2 marks)**

**Q12.**

A charity sends an appeal letter to 3000 people.

The letter asks for a donation of money.

Here is some information about the last appeal letter the charity sent out.

|  |
| --- |
|  of the people who were sent the letter made a donation. |
| The average donation was £8.60 |
|  of the people who made a donation filled in a tax form.The government adds 25% to the donations of these people. |

(a)  Using this information,

work out the amount the charity can expect to receive from this appeal.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Answer £ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(6)**

(b)  The average donation from the people who filled in a tax form was more than £8.60

How does this affect your answer to part (a)?

Tick **one** box.

|  |  |
| --- | --- |
|  | It should be lower |
|  | It should be higher |
|  | It should stay the same |

Give a reason.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**(1)**

**(Total 7 marks)**

**Q13.**

What is the angle of turn clockwise from South West to East?

Circle your answer.

45°       135°       225°       315°

**(Total 1 mark)**

**Q14.**

Each side of a square is made 3 times as long.

What happens to the perimeter?

Circle your answer.

×3       ×6       ×9       ×12

**(Total 1 mark)**

**Q15.**

The table shows the number of messages Sam received each day for five days.

|  |  |
| --- | --- |
|   | **Messages** |
| **Number of emails** | **Number of texts** |
| Monday | 12 | 5 |
| Tuesday | 8 | 6 |
| Wednesday | 10 | 3 |
| Thursday | 6 | 6 |
| Friday | 12 | 4 |

(a)  Sam draws a composite bar chart to represent the data.

He has drawn the bar for Monday.

Complete the chart.

**(2)**

(b)  In total, what fraction of the messages were emails?

Give your answer in its simplest form.

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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(3)**

**(Total 5 marks)**

**Q16.**

(a)  Complete the bank statement.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **Description** | **Credit (£)** | **Debit (£)** | **Balance (£)** |
| 01/09/18 | Starting balance |   |   | 1140.79 |
| 06/09/18 | Car repairs |   | 256.00 | \_\_\_\_\_\_\_\_\_ |
| 17/09/18 | Gas bill |   | 87.31 | \_\_\_\_\_\_\_\_\_ |
| 24/09/18 | Salary | 2069.75 |   | \_\_\_\_\_\_\_\_\_ |

**(3)**

(b)  Write down the meaning of ‘Debit’ as used in the bank statement.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**(1)**

**(Total 4 marks)**

**Q17.**

Line *AB* is shown on the grid.

*A* is the point (0, 2)

*B* is the point (6, 5)

(a)  Work out the coordinates of the midpoint of the line *AB*.

Answer  ( \_\_\_\_\_\_\_\_ , \_\_\_\_\_\_\_\_ )

**(1)**

(b)  *C* is another point on *AB*. *C* is closer to *B* than to *A*. The coordinates of *C* are whole numbers.

Work out the coordinates of *C*. Answer  ( \_\_\_\_\_\_\_\_ , \_\_\_\_\_\_\_\_ )

**(1)**

(c)  On the grid, draw a line from point (0, 0) that is

parallel to *AB*

and

two thirds as long as *AB*.

**(2)**

**(Total 4 marks)**

**Q18.**

Lena is at the gym.

(a)  She will use each of these pieces of equipment once.

|  |  |
| --- | --- |
| Rowing machine (R) | Stepper (S) |
| Treadmill (T) | Bike (B) |

Lena will use the rowing machine **first**.

List all the possible orders in which she could use the four pieces of equipment.

**(2)**

(b)  The table shows how long Lena spends on each piece of equipment.

|  |  |
| --- | --- |
| Rowing machine | 15 minutes |
| Stepper | 13 minutes |
| Treadmill | 35 minutes |
| Bike | 1 hour 30 minutes |

Lena starts on the rowing machine at 1.50 pm

She has a break for 4 minutes between pieces of equipment.

What time does she finish on her last piece of equipment?

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Answer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(3)**