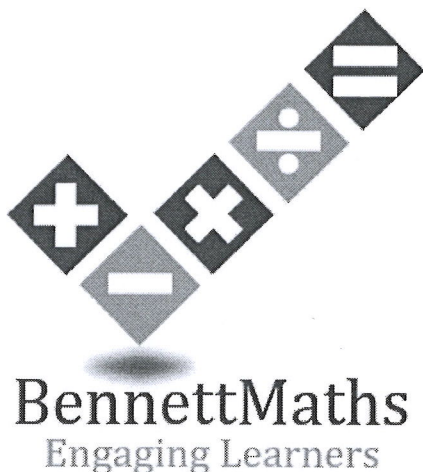


DB Solutions

Candidate surname

Other names



Best Guess Paper – Non-Calculator Foundation Tier

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may not be used.**

Information

- The total mark for this paper is 79.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Q1.

Find 10% of £320

£ 32

(Total for question = 1 mark)

Q2.

Change 53 centimetres to millimetres.

530

millimetres

(Total for question = 1 mark)

Q3.

Write down the value of the 7 in the number 8765

700

(Total for question = 1 mark)

Q4.

Work out $\frac{1}{8}$ of 720

90

(Total for question = 1 mark)

Q5.

(a) Simplify $5f - f + 2f$

$$6f$$

(1)

(b) Simplify $2 \times m \times n \times 8$

$$16mn$$

(1)

(c) Simplify $t^2 + t^2$

$$2t^2$$

(1)

(Total for question is 3 marks)

Q6.

(a) Write $\frac{1}{4}$ as a decimal.

$$0.25$$

(1)

(b) Write 0.15 as a fraction.

$$\frac{15}{100}$$

(1)

(c) Write 17 out of 40 as a fraction.

$$\frac{17}{40}$$

(1)

(Total for question = 3 marks)

Q7.

(a) Work out $+8 - 6$

2

(1)

(b) Work out $-5 - 4$

-9

(1)

(c) Work out $-12 \div +4$

-3

(1)

(Total for Question is 3 marks)

Q8.

Sue has 2 cats.

Each cat eats $\frac{1}{4}$ of a tin of cat food each day.

Sue buys 8 tins of cat food.

Has Sue bought enough cat food to feed her 2 cats for 14 days?
You must show how you get your answer.

$$2 \times \frac{1}{4} = \frac{1}{2} \text{ a can per day}$$


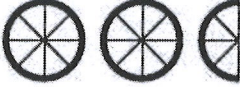
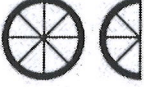
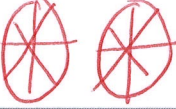
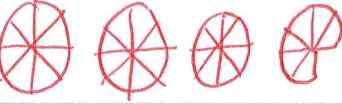
$$14 \times \frac{1}{2} = 7 \text{ cans in total}$$

Yes


(Total for question = 3 marks)

Q9.

The incomplete pictogram shows information about the number of cycles sold in a shop on Tuesday, on Wednesday and on Thursday.

Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

Key:



A total of 20 cycles were sold on Tuesday, Wednesday and Thursday.

8 cycles were sold on Friday.

15 cycles were sold on Saturday.

Use this information to complete the pictogram.

$$5 \text{ wheels} = 20$$

$$1 \text{ wheel} = 4$$

(Total for question = 3 marks)

Q10.

(a) Solve $x + x + x = 51$

$x = 17$
(1)

(b) Solve $\frac{y}{4} = 3$

$y = 12$
(1)

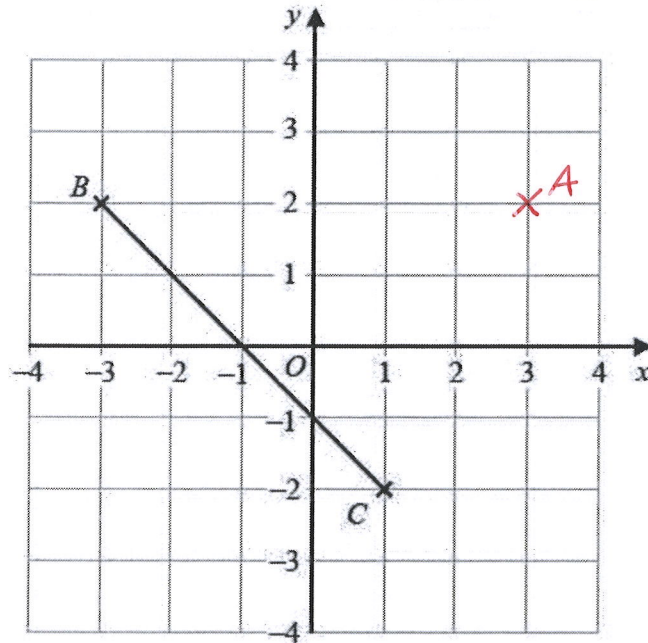
(c) Solve $2f + 7 = 18$

$2f = 11$
 $f = 5.5$

$f = 5.5$
(1)

(Total for question = 3 marks)

Q11.



- (a) Plot the point with coordinates (3, 2)
Label this point A.

(1)

- (b) Write down the coordinates of the midpoint of BC.

(-1 , 0)

(1)

(Total for question = 2 marks)

Q12.

Ali, Ben and Cathy share an amount of money in the ratio 6 : 9 : 10

What fraction of the money does Ben get?

$$\frac{9}{6+9+10} = \frac{9}{25}$$

.....
(Total for question = 2 marks)

Q13.

Amber earns £7 for each hour she works from Monday to Friday.
She earns £10 for each hour she works on Saturday.

One week Amber worked for 4 hours on Saturday.
That week she earned a total of £180

(a) How many hours did Amber work that week?

$$4 \times 10 = 40$$
$$7x + 40 = 180$$
$$7x = 140$$
$$x = 20$$
$$20 + 4 = \underline{24}$$

..... hours
(3)

Chris works for 7 hours each day from Monday to Friday.
He earns e pounds for each hour he works.

(b) Write down an expression, in terms of e , for the total amount, in pounds, that Chris earns from Monday to Friday.

Give your answer in its simplest form.

$$7 \times 5 = 35$$
$$35 \times e = 35e$$

.....
(2)

(Total for question = 5 marks)

Q14.

$$\frac{790 \times 289}{49}$$

Work out an estimate for

$$\frac{800 \times 300}{50} = \frac{240000}{50} = 4800$$

(Total for question = 3 marks)

Q15.

Here is a list of ingredients for making 16 flapjacks.

Ingredients for 16 flapjacks	
120 g	butter
140 g	brown sugar
250 g	oats
2	tablespoons syrup

<u>8</u>	<u>24</u>
60	180
70	210
125	375
1	3

Jenny wants to make 24 flapjacks.

Work out how much of each of the ingredients she needs.

butter	.....	<u>180</u>	.....	g
brown sugar	.....	<u>210</u>	.....	g
oats	.....	<u>375</u>	.....	g
syrup	.....	<u>3</u>	.....	tablespoons

(Total for question = 3 marks)

Q16.

Natalie makes potato cakes in a restaurant.

She mixes potato, cheese and onion so that

$$\text{weight of potato} : \text{weight of cheese} : \text{weight of onion} = 9 : 2 : 1$$

Natalie needs to make 6000 g of potato cakes.

Cheese costs £2.25 for a 175 g packet.

Work out the cost of the cheese needed to make 6000 g of potato cakes.

$$9 + 2 + 1 = 12$$

$$\frac{6000}{12} = 500$$

$$500 \times 2 = 1000\text{g}$$

$$\begin{array}{r} 175 \\ 350 \\ 525 \\ 700 \\ 875 \\ 1050 \leftarrow 6 \text{ packets} \end{array}$$

$$\begin{array}{r} 2.25 \times 6 = \\ 2 \times 6 = \pounds 12 \\ 0.25 \times 6 = \pounds 1.50 + \\ \pounds 13.50 \end{array}$$

£

(Total for question = 4 marks)

Q17.

$$v^2 = u^2 + 2as$$

$$u = 12 \quad a = -3 \quad s = 18$$

(a) Work out a value of v .

$$v^2 = 12^2 + 2 \times -3 \times 18$$

$$v^2 = 144 + -108$$

$$v^2 = 36$$

$$v = 6$$

.....
(2)

(b) Make s the subject of $v^2 = u^2 + 2as$

$$-u^2 - u^2$$

$$v^2 - u^2 = 2as$$

$$\div 2a \quad \div 2a$$

$$\frac{v^2 - u^2}{2a} = s$$

.....
(2)

(Total for question = 4 marks)

Q18.

(a) Factorise $y^2 + 27y$

$$y(y+27)$$

.....
(1)

(b) Simplify $(t^3)^2$

$$t^6$$

.....
(1)

(c) Simplify $\frac{w^9}{w^4}$

$$w^5$$

.....
(1)

(Total for question = 3 marks)

Q19.

Savio leaves his home at 07 30 to drive to work.

He drives a distance of 50 miles.

Savio thinks he drives at an average speed of 40 miles per hour.

(a) If Savio is correct, at what time will he arrive at work?

*40 miles = 1 hour
10 miles = 15 mins
50 miles = 1 hour 15 mins*

08:45

.....
(3)

In fact, Savio's average speed was greater than 40 miles per hour.

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

He would arrive earlier
.....
.....
.....

(1)

(Total for question = 4 marks)

Q20.

(a) Work out $\frac{2}{7} + \frac{1}{5} = \frac{10}{35} + \frac{7}{35} = \frac{17}{35}$

.....
(2)

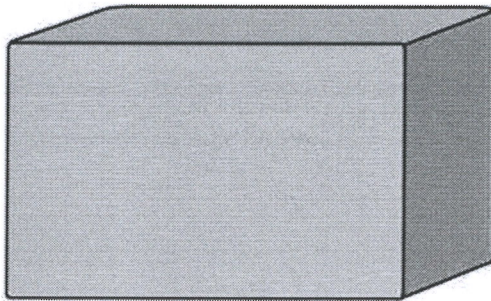
(b) Work out $1\frac{2}{3} \div \frac{3}{4}$

$$\frac{5}{3} \div \frac{3}{4} = \frac{5}{3} \times \frac{4}{3} = \frac{20}{9}$$

.....
(2)

(Total for question = 4 marks)

Q21.



$\text{pressure} = \frac{\text{force}}{\text{area}}$
--

A storage tank exerts a force of 10 000 newtons on the ground.

The base of the tank in contact with the ground is a 4m by 2m rectangle.

Work out the pressure on the ground due to the tank. $8\text{m}^2 = \text{area}$

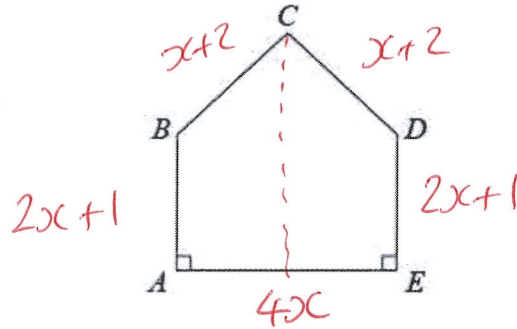
$$P = \frac{10000}{8} = \frac{5000}{4} = \frac{2500}{2} = 1250$$

..... newtons / m²

(Total for question = 2 marks)

Q22.

The diagram shows a pentagon.
The pentagon has one line of symmetry.



$AE = 4x$
 $AB = 2x + 1$
 $BC = x + 2$

All these measurements are given in centimetres.

The perimeter of the pentagon is 18 cm.

(a) Show that $10x + 6 = 18$

$$2x + 1 + x + 2 + x + 2 + 2x + 1 + 4x = 18$$
$$10x + 6 = 18$$

(3)

(b) Find the value of x .

$$10x + 6 = 18$$
$$10x = 12$$
$$x = 1.2$$

$x = \dots\dots\dots$

(2)

(Total for question = 5 marks)

Q23.

Express 56 as the product of its prime factors.

$$\begin{array}{c} 56 \\ \wedge \\ 2 \quad 28 \\ \quad \wedge \\ \quad 2 \quad 14 \\ \quad \quad \wedge \\ \quad \quad 2 \quad 7 \end{array}$$

$$2^3 \times 7$$

(Total for question = 2 marks)

Q24.

Work out 6.34×5.2

$$\begin{array}{r} 634 \\ \times 52 \\ \hline 1268 \\ 31700 + \\ \hline 32968 \end{array}$$

$$32.968$$

(Total for question = 3 marks)

Q25.

A number, d , is rounded to 1 decimal place.
The result is 12.7

Complete the error interval for d .

$$\pm 0.5$$

$$12.65 \leq d < 12.75$$

(Total for question = 2 marks)

Q26.

(a) (i) Write down the value of 5^0

1

value of 5^0

(1)

(ii) Write down the value of 5^{-2}

$\frac{1}{25}$

(1)

(b) Write $\frac{2^5 \times 2^4}{2^3}$ in the form 2^n where n is an integer.

$$\frac{2^4}{2^3} = 2^1$$

(2)

(Total for question = 4 marks)

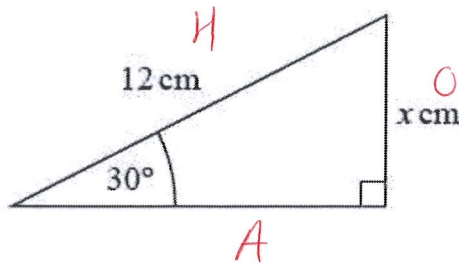
Q27.

(a) Write down the exact value of $\cos 30^\circ$

$\frac{\sqrt{3}}{2}$

(1)

(b)



Given that $\sin 30^\circ = 0.5$, work out the value of x .

$$\sin(30) = \frac{x}{12}$$

$$\sin(30) \times 12 = x$$

$$\frac{1}{2} \times 12 = x$$

$$6 = x$$

(2)

(Total for question is 3 marks)