

Bosworth Independent College

AS Mathematics Test

Time allowed: 1 hour

- Show all of your working in the space provided on the answer paper. Please do not write on the question paper.
- Calculators are not allowed.
- You will need a pen, pencil, ruler and an eraser.
- This paper must be taken under exam conditions.

NAME:

DATE:

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MATHEMATICS TEST B (AS)

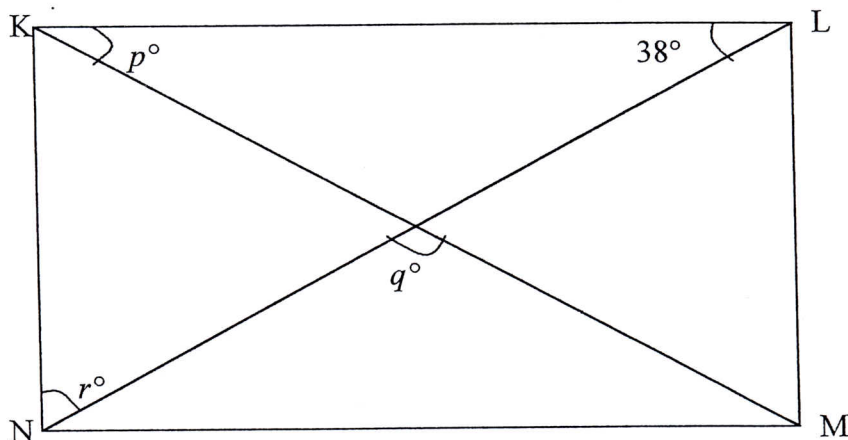
Please attempt all questions.

Write your answers on the answer sheet provided. Show all stages in your working.

- 1) The exchange rate is 205 Spanish pesetas to £1.
Work out the value of £340 in Spanish pesetas (2)

- 2) An advertising magazine has 8 pages of garage advertisements, 6 pages of fashion shop advertisements, 2 pages of supermarket advertisements and no other pages.
Pauline picks a page at random. What is the probability that she will
 - a) Pick a garage advertisement (2)
 - b) Not pick a fashion shop advertisement? (2)

3)



KLMN is a rectangle. Work out the value of:

- a) p (2)
 - b) q (2)
 - c) r (2)
-
- 4) Solve the equations:
 - a) $2x + 3 = 17$ (2)
 - b) $4 - 3y = 10$ (2)
 - c) $2t + 1 = 3(t - 4)$ (3)

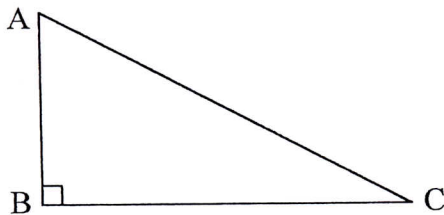
5) The takings at a Christmas Fayre amounted to £1470. It was decided to divide the money between the School Minibus Fund and a local charity in the ratio 3:2. How much did the charity receive? (2)

6) Tickets for seats at a concert are at three prices: £20, £16 and £11. One quarter of the seats are for £20 tickets, one third for £16 tickets and the remaining 845 seats cost £11 each.

a) How many seats are available? (3)

b) Find the total amount collected if every ticket is sold. (3)

7)



Triangle ABC is a right angled triangle. $AB = 6\text{cm}$ and $BC = 10\text{cm}$, Find the length of AC. (3)

8) Solve the equations to find the value of x :

a) $4x - 5 = 19$ (2)

b) $17 - 2x = 5$ (2)

c) $2(x - 6) = 8$ (2)

d) $\frac{3x}{4} = 6$ (2)

9) A quantity of sugar is weighed out on a scale and the reading is 250g. A spoonful of sugar is removed and the new reading is 221.6g.

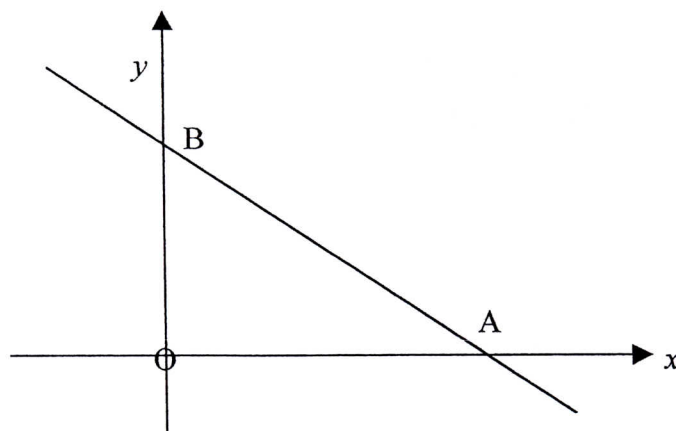
a) How many grams of sugar are removed? (1)

b) What is this weight in milligrams? (1)

10) $y = 4x^3 + 2x - 5$

differentiate to find $\frac{dy}{dx}$ (2)

11)



The straight line cuts the x -axis at A and the y -axis at B. The coordinates of A are $(5,0)$ and the coordinates of B are $(0,4)$

Write the equation of the line in the form $y = mx + c$. (3)

12) The function f is defined by $f(x) = 5x - 3$. Find

a) $f(3)$ (1)

b) $f(-4)$ (1)

13) a) Solve the quadratic equation (Find x):

$$x^2 - 2x - 15 = 0 \quad (2)$$

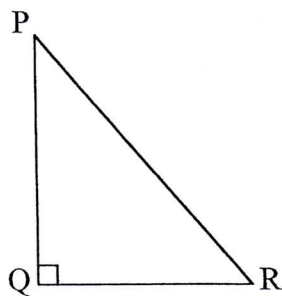
b) Find the value of a such that:

$$x^2 + 10x + 21 = (x + 3)(x + a) \quad (2)$$

c) Find the value of b such that:

$$x^2 - 36 = (x - b)(x + b) \quad (2)$$

14)



PQR is a right angled triangle with $PQ = 5\text{cm}$ and $PR = 9\text{cm}$

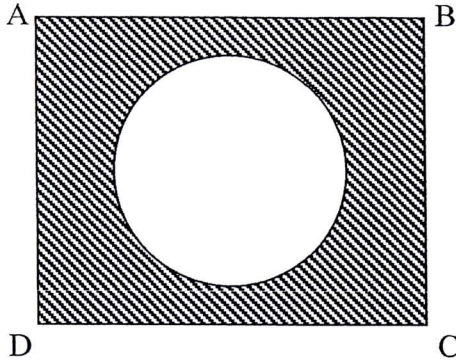
Calculate angle PRQ

(3)

15) If $k = \frac{3n+2}{n+1}$ find the value of n when $k = 7$

(3)

16)



ABCD is a rectangle with $AB = 6\text{cm}$ and $BC = 5\text{cm}$. The diameter of the circle is 4cm . Calculate the shaded area correct to 2 decimal places (4)

17) Solve the equation: $2x^2 - 3x - 7 = 0$ giving answers correct to 2 decimal places (4)

18) Solve these simultaneous equations to find x and y .

$$\begin{aligned} 3x + 2y &= 12 \\ 4x + 5y &= 23 \end{aligned} \quad (4)$$

19) Factorise: $a^2 - b^2 - 3a - 3b$ (3)

20) A six-sided die was thrown 100 times. The table gives the number of times each score was obtained.

Score	1	2	3	4	5	6
Frequency	16	20	13	16	11	24

Find:

a) Mean (3)

b) Median (2)

c) Mode for these data. (1)

MATHEMATICS TEST B
ANSWER SHEET

NAME: _____

1)

_____ Ptas

2)

a)

b)

3)

a)

$p =$ _____

b)

$q =$ _____

c)

$r =$ _____

4)

a)

$x =$ _____

b)

$y =$ _____

c)

$t =$ _____

5)

£ _____

6)

a)

_____ seats

b) .

£ _____

7)

_____ cm

8)

a)

$$x = \underline{\hspace{2cm}}$$

b)

$$x = \underline{\hspace{2cm}}$$

c)

$$x = \underline{\hspace{2cm}}$$

d)

$$x = \underline{\hspace{2cm}}$$

9)

a)

$$\underline{\hspace{2cm}} \text{ g}$$

b)

$$\underline{\hspace{2cm}} \text{ mg}$$

10)

$$\frac{dy}{dx} = \underline{\hspace{2cm}}$$

11)

$$y = \underline{\hspace{2cm}}$$

12)

a)

$$f(3) = \underline{\hspace{2cm}}$$

b)

$$f(-4) = \underline{\hspace{2cm}}$$

13)

a)

$$x = \underline{\hspace{1cm}} \text{ or } \underline{\hspace{1cm}}$$

b)

$$a = \underline{\hspace{2cm}}$$

c)

$$b = \underline{\hspace{2cm}}$$

14)

$$\hat{P}RQ = \underline{\hspace{2cm}}$$

15)

$$n = \underline{\hspace{2cm}}$$

16)

_____ cm^2

17)

$x =$ _____ or _____

18)

$x =$ _____

$y =$ _____

19)

20)

a)

mean = _____

b)

median = _____

c)

mode = _____