

GCSE

Mathematics: Non Calculator

Paper 1

Specification EDEXCEL A

Name

There are **10** questions in the Question Booklet.
Answer **all** the questions.
The maximum mark for this paper is 40.

For this paper you must have

- A ballpoint pen with black ink.
- A ruler with millimetre measurements.
- A calculator.

Time allowed

30 minutes.

Question	Mark
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
TOTAL	

Grade Boundaries

A* **33**

A **27**

B **22**

C **16**

D **9**

1. (a) Write down the value of 16×10 .

_____ (1 mark)

(b) Calculate $32 \div 7$, giving your answer to two decimal places.

_____ (2 marks)

2. Here are the lengths, in cm, of 12 leaves.

12	4	19	32	22	10	9
19	36	14	29	31	17	5

Draw an ordered stem and leaf diagram to show these data.

_____ (3 marks)

3. You can calculate the amount of energy in joules given out by a computer screen by using the formula

$$e = \frac{tp}{3}$$

e is the energy given out in joules.

t is the length of time, in minutes, the screen has been on for.

p is the power rating of the screen.

A computer screen has been on for 1.5 hours and has a power rating of 2. Calculate the energy, in joules, given out by the screen.

..... J

(2 marks)

4. Pair the equivalent fractions.

$$\frac{2}{5}$$

$$\frac{4}{12}$$

$$\frac{1}{3}$$

$$\frac{1}{2}$$

$$\frac{7}{14}$$

$$\frac{4}{10}$$

$$\frac{2}{10}$$

(3 marks)

Turn over for Question 5 ►

5. (a) Simplify

(i) $3a + 2b - 10a + b$.

_____ (1 mark)

(ii) $a^2 + (2a)^2$

_____ (1 mark)

(b) Expand and simplify $a(4 - 6b) + b(2 + 5a)$

_____ (2 marks)

6. Factorise the following.

(a) $4p + 8$

_____ (1 mark)

(b) $p^2 - 3p - 10$

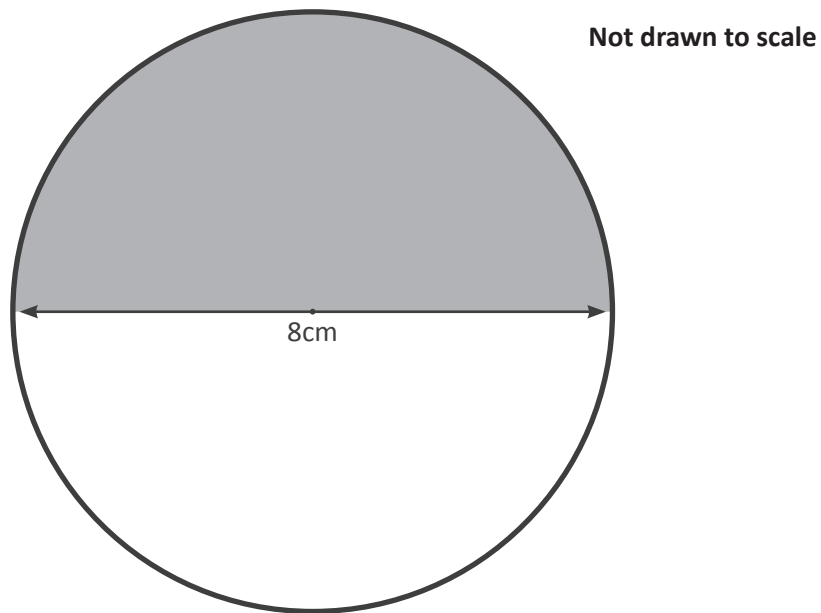
_____ (2 marks)

(c) $(9p)^2 - 4$

_____ (2 marks)

7. The circle has a diameter of 8cm .

(a) Calculate the circumference of the circle, giving your answer in terms of π .



_____ (1 mark)

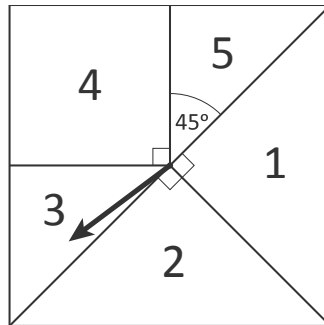
(b) Half of the circle is shaded. Calculate the area of the shaded region, giving your answer in terms of π .

_____ (3 marks)

Turn over for Question 8 ►

8. Beth and Max are playing a game. In each round of the game each player spins the spinner once. If the spinner lands on an even number then the player gets that number of points. If the spinner lands on an odd number then the total number of points that player has is halved.

The winner is the player with the **most** points after a set number of rounds.



- (a) Calculate the probability that a player will spin an even number, giving your answer as a **percentage**.

_____ (2 marks)

- (b)(i) Beth has **1** point and Max has **4** points at the beginning of a round.

It is Beth's turn to spin the spinner. Calculate the probability that she will have more points than Max at the end of her go.

_____ (2 marks)

- (ii) Beth has **1** point and Max has **4** points at the beginning of a round.

Calculate the probability of a Max having a score of **1** point after two rounds are played.

_____ (2 marks)

- (c) Max and Beth play the game again. At the end of the game, Max has 9 points and Beth has 4 points.

Work out the **minimum** number of rounds played in Beth and Max's game, where a round is when each player has spun the spinner once.

_____ (1 mark)

9. A bag contains white beads, red beads and blue beads in the ratio

$$\text{white : red : blue} = x : 3x : 2x^2.$$

- (a) Show that the fraction of blue beads in the bag is $\frac{x}{(x+2)}$.

_____ (2 marks)

- (b) Given that a third of the beads are blue, calculate the total number of beads in the bag.

_____ (3 marks)

Turn over for Question 10 ►

10.(a) A sequence has n th term $3n + 1$ and starts 4 7 10 13 ...

(i) Write down the next term in the sequence.

_____ (1 mark)

A second sequence starts 1 7 13 19 ...

(ii) Write down the n th term of this sequence.

_____ (2 marks)

(b) The points **A**, **B**, **C** and **D** are in a straight line.

- A** (4, 1)
- B** (7, 7)
- C** (10, 13)
- D** (13, 19)

(i) Write down the coordinates of Point n on this sequence.

Point n (..... ,) _____ (1 mark)

(ii) Calculate the equation of the line which passes through the points **A**, **B**, **C** and **D**.

_____ (3 marks)

END OF QUESTIONS