

Westminster International University in Tashkent

Mathematics Entrance Examination

DATE:

- i. Time allowed: One hour ten minutes**
- ii. Answer all questions.**
- iii. No calculators are allowed.**
- iv. All your working must be presented on the same page as the question. Answers with no evidence of calculations will not score any marks.**
- v. Write your answers in the spaces below the questions.**
- vi. Nothing should be removed from the exam room.**

Please note the additional requirements:

- vii. You are not allowed to leave the exam room during the examination.
- viii. You are not allowed to talk, to whisper, to turn around, use any pre-prepared notes, calculators, dictionaries or to look at another candidate's examination papers, all of which are considered violation of exam rules and may incur a penalty. You will be given no warning; should you do any of these things you will be reported to the Assessment Board for penalty application.
- ix. You may use non-erasable blue or black pen to write your answers including graphs. Any answers written in pencil will not be marked.
- x. You may not use whiteout/correction fluid. If you make a mistake, simply draw a line through the mistake with pen and continue.
- xi. You may not borrow another student's stationery or materials even with the consent of the invigilator.
- xii. If your pen runs out of ink you may request a replacement from the invigilator. If any are available a replacement will be provided for you. No other stationary or materials may be provided for you by the invigilator.
- xiii. All mobile phones and other electronic devices must be switched off and left at a place indicated by the invigilators.

Applicant ID:	
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All questions on this paper must be answered.

Write the answers in the space below each question.

Show **ALL** working for each question.

1. There is an arithmetic sequence with first five terms as follows:

2 7 12 17

There is another arithmetic sequence with n th term $4n + 15$

The final term of each sequence is the same number.

Both sequences have the same number of terms.

Find the number of terms in each sequence.

.....
4 marks

Total for page: 4 marks

2. Work out the following giving your answers in the simplest form.

a. $5\frac{1}{6} - 2\frac{3}{8}$

.....
2 marks

b. $\frac{1}{5} \times \frac{5}{6} \div \frac{1}{3}$

.....
2 marks

c. Evaluate

(i) $0.0001^{\frac{1}{4}}$

.....
1 mark

(ii) $125^{\frac{2}{3}}$

.....
1 mark

(iii) $(4 \times 10^3) \div (8 \times 10^{-6})$
Give your answer in standard form

.....
3 marks

Total for page: 9 marks

3. Factorise

a. $4p^2q - 6pq^2 + 8pq$

.....
2 marks

b. $x^2 - 13x + 22$

.....
2 marks

c. Solve $5x^2 - 7x + 2 = 0$

.....
3 marks

4. Express the following as a single fraction

$$\frac{5}{x-2} + \frac{3}{x+3}$$

.....
2 marks

Total marks for page: 9 marks

5. The base of a parallelogram is 7cm more than its height, h .

- a. Write down an expression, in terms of h , for the base of the parallelogram
Give answer in the simplest form.

.....

1 mark

- b. Write down an expression, in terms of h , for the area of the parallelogram

.....

2 marks

- c. Work out the area of the parallelogram when

- (i) $h = 5$ cm (ii) $h = 1$ cm (iii) $h = 4$ cm

(i).....2 marks

(ii).....2 marks

(iii).....2 marks

Total marks for page: 9 marks

6. The n th term of a particular sequence is $6n + 1$.

a. Write down the first four terms of the sequence

.....

2 marks

b. The number 727 is one of the terms in the sequence, which term is it?

.....

2 marks

7. Solve this simultaneous equation

$$y = 2x + 2$$

$$y = x^2 - 1$$

$x =$ $y =$

OR $x =$ $y =$

6 marks

Total marks for page: 10 marks

8. y is inversely proportional to the cube of x , and $y=25$ when $x=2$.
Find y when $x=5$

.....
4 marks

9. A laptop computer is reduced by 35% in a sale to \$91.00, find the original price.



.....
5 marks

Total marks for page: 9 marks

10. Below is a list of nine equations.

$$y = 3x - 2$$

$$y = 2x + 3$$

$$y + 2x = 7$$

$$y = 7x + 3$$

$$3 - y = 2x$$

$$y - 3x + 4 = 0$$

$$y = 2 + 7x$$

$$y + 5x = 7$$

$$2y = 3 - 10x$$

a. Match up four pairs of parallel lines

1..... and

2..... and

3..... and

4..... and

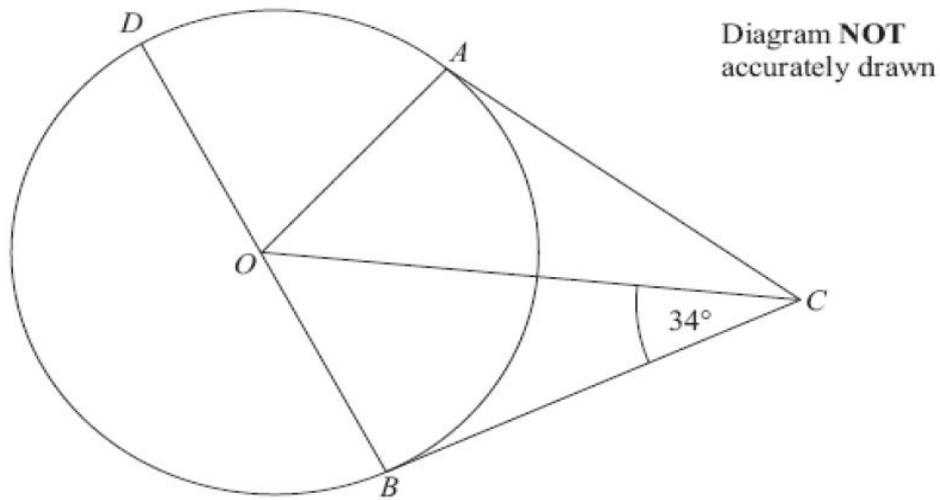
2 marks for each pair

b. Give another equation which is parallel with the odd one out (the unmatched equation)

.....

2 marks

11. a. Work out the size of the angle DOA



.....

4 marks

b. The radius of the circle is 10 cm. Find the area of the sector DOA

Use 3.14 as the value for π . Give your answer to the nearest cm^2

.....

3 marks

Total marks for page: 7 marks

12.



A UK £20 note is a rectangle 198 mm long and 92 mm wide.
A UK £10 note is a rectangle 132 mm long and 69 mm wide.

Show that the two rectangles are not mathematically similar

3 marks

Total marks for page: 3 marks

END OF TEST

DO NOT WRITE ON THIS PAGE