



**Entrance test for
Westminster International University in Tashkent**

**Mathematics
July 2015**

- i. Time allowed: One hour ten minutes**
- ii. Answer all questions.**
- iii. It is advised that you work quickly and that you leave behind questions that are taking you too long to answer.**

You should only bring in: pens, pencils, erasers, rulers, protractors. Correction fluid is NOT allowed.

- iv. No calculators are allowed.**
- v. All your working must be presented on the same page as the question. Answers with no evidence of calculations will not score any marks.**
- vi. Write your answers in the spaces below the questions.**
- vii. Nothing should be removed from the exam room.**

Candidate Name:

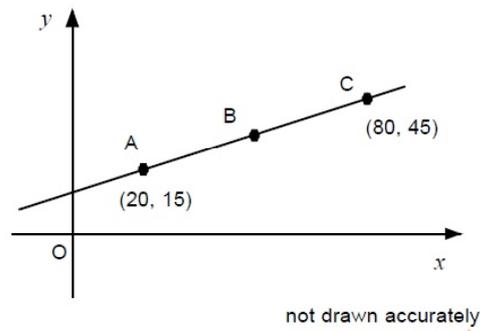
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All questions on this paper must be answered.

Write the answers in the space below each question.

Show **ALL** working for each question.

1. The three points, A, B and C on the graph are equally spaced.



What are the co-ordinates of point B?

.....

(2 marks)

Total 2 marks

2. A ball is dropped and bounces up to a height that is 75% of the height from which it was dropped.

It then bounces again to a height that is 75% of the previous height and so on.

How many bounces does it make before it bounces up to less than 25% of the original height from which it was dropped?



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(5 marks)
Total 5 marks

3. You are planning a short holiday to Bratislava with your friends, Ana and Martins.
 You will not be taking a bag but Ana will be taking two and Martins will be taking one.
 You have two travel companies to choose from – LowCost Holidays and Sunny Days Airlines.

You find the following information out about each company's prices.



LowCost Holidays Winter Getaways		Sunny Days Airlines Super Deals Tashkent - Bratislava	
November and December Tashkent - Bratislava fares Just \$29 per person return (Excludes charges listed below)		Out 9 th November return 13 th November \$59.90 per person return (excluding taxes and fees)	
Further charges apply to all bookings:		Taxes (flights departing Tashkent)	\$10
Taxes per person (return flights)	\$23.20	Taxes (flights departing Bratislava)	\$5
Baggage one way per item	\$14	Baggage (up to 2 items per person)	FREE
Booking fee per passenger	\$3	Booking fee per group (up to 5 passengers)	\$7.50

Work out the cost of each holiday option.

Which company should they use?

Price of LowCost.....
 (4 marks)

Price of Sunny Days.....
 (4 marks)

Which one would you chose?.....

Total 8 marks

4. a) Factorise fully

$$12x^3 + 10x^2 - 12x$$

.....

(3 marks)

b) Factorise fully

$$(x+1)^2 - 25$$

.....

(3 marks)

c) Solve

$$2x^2 + 7x + 3 = 0$$

.....

(3 marks)

Total 9 marks

5. A circle has a radius of 6cm.

A square has a side of length 12cm.

Work out the difference between the area of the circle and the area of the square.

Give your answer correct to two decimal places. Give the correct units.

Use 3.14 as pi (π)

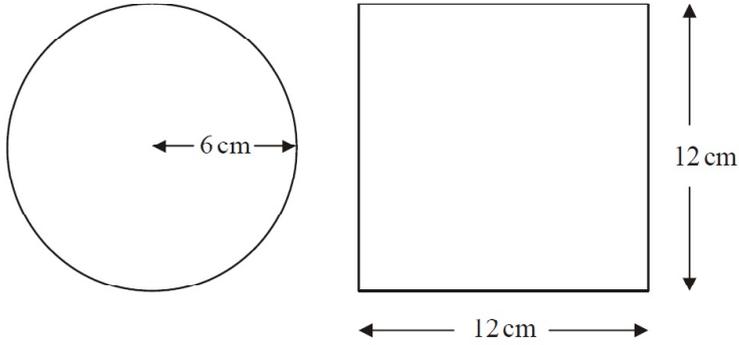


Diagram **NOT** accurately drawn

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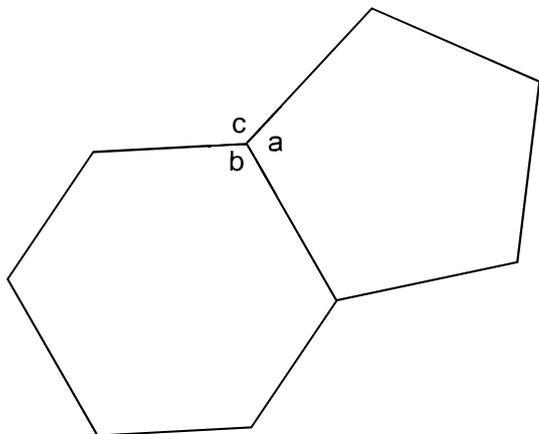
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(4 marks)

Total 4 marks

6. The diagram shows a regular pentagon and a regular hexagon

Find the angles marked a, b and c



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Angle a.....
(2 marks)

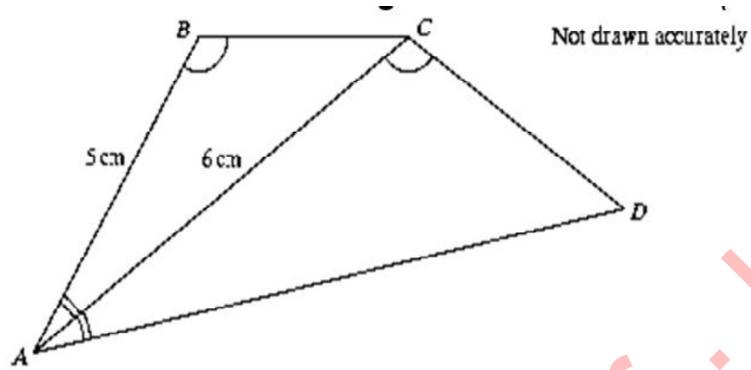
Angle b.....
(2 marks)

Angle c.....
(2 marks)

Total 6 marks

7. Triangles ABC and ACD are similar.

AB = 5cm and AC = 6cm. Calculate the length of AD.



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(2 marks)

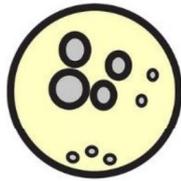
Total 2 marks

8. The distance between planet A and planet B is 7.4×10^6 km.

The distance between planet B and planet C is 9.8×10^{12} km.

How far is it from planet A to planet C?

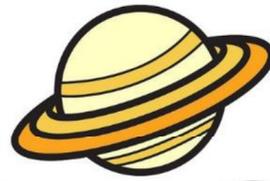
Give your answer in standard form.



Planet A



Planet B



Planet C

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.....

(4 marks)
Total 4 marks

9.a) Make p the subject of the formula $y = 3p^2 - 4$

.....
(2 marks)

b) Solve

$$\frac{h+7}{3} + \frac{2h-1}{2} = \frac{5}{6}$$

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.....
(3 marks)
Total 5 marks

10. In a sale all prices are reduced by 20%.
The sale price of a washing machine is \$464.
By how many dollars had it been reduced from its original price?



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.....

(5 marks)

Total 5 marks

11. Diet Coke is on offer at Cheapbuy Supermarket and at Easyprice Supermarket.

Cheapbuy: 2 litre bottles on offer 3 for \$4.50

Easyprice: 24 cans x 330ml on offer for \$8.85



Which supermarket is offering the best value for money?

Explain your answer

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.....
(5 marks)

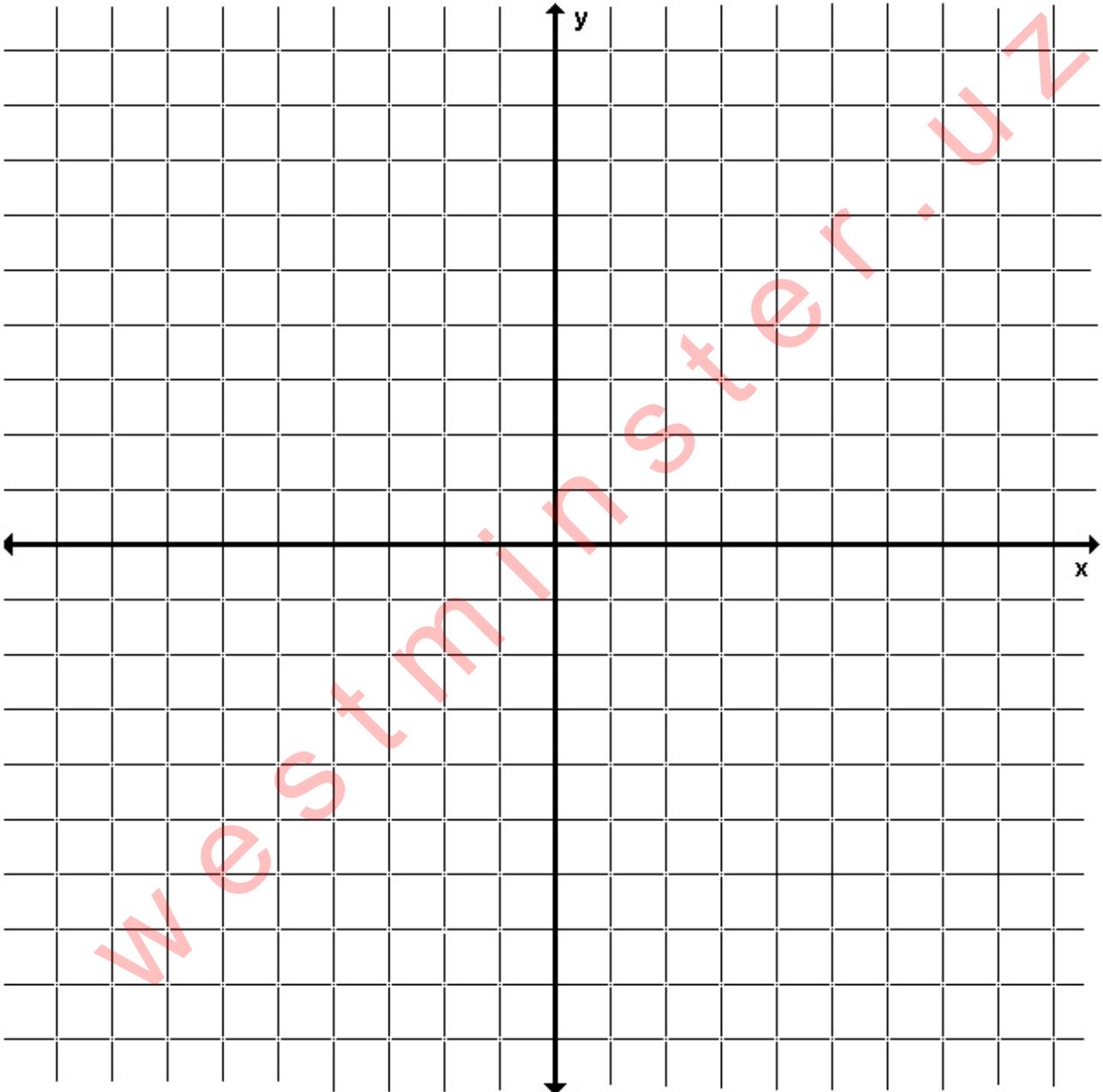
Total 5 marks

12.a) Complete the table of values for $y = x^3 - 4x$

x	-3	-2	-1	0	1	2	3
y			3	0			15

(4 marks)

b) On the grid, draw the graph of $y = x^3 - 4x$ from $x = -3$ to $x = 3$



(6 marks)

Total 10 marks

13. Nadia makes some cupcakes. She eats 30% herself. She shares the rest out between her brother and her sister in the ratio of 3:2. What fraction of the cupcakes did she give to her sister?



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.....
(5 marks)
Total 5 marks

END OF TEST