Magdalen College School Oxford: 13+ Maths Scholarship Paper 1

School: **Magdalen College School**

Subject: **Maths**

Level: **13+**

Time: **60 mins**

Type: **Scholarship Paper 1**

Year in use: **Undated Pre-2014 (last checked Oct 2014)**

search

Q ⬍	Answer ⬍	Solution ⬍
1.	(i) (a) $a^3 + b^3$ (b) $-2x^3 + 3x^2 - 10x + 15$ (ii) (a) $(x - 3)(x + 10)$ (b) $(x - 1)(x - 16)$ (c) $2x(x - 3)$	

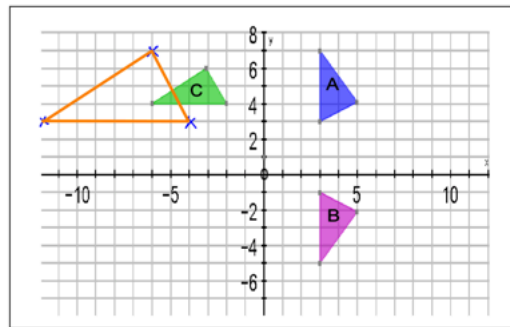|	
2.	For Radius 3: 1/3 For Radius 5: 1/5 For Radius 2n+1: $1/(2n + 1)$
3.	(i) x = 1.83 (ii) S = 44.4 (iii) F = -10.2
4.	(i) (a) 3 (b) $8a^3$ (c) y/2 (d) -6a − 45b + 7 (e) $2x^2 + 7xy − y^2$
5.	(i) x = 20 (ii) x = 9/7 (iii) x = 9
6.	Both triangles are of the same size

7.	1645 *Note: Newton was actually born in 1643. So the original has a small typo. The year he died should be $x^3 - 1$ instead of $x^3 + 1$.*
8.	48.67 kg
9.	(a) 150° Triangle
10.	5
11.	(a) £26,000 (b) £39,000
12.	100 km/hr

13.

(a) Reflection by line y = 1

(b) Rotation 9o° anticlockwise at point (0 , 1)

(c)

14.

Conservative: 15,238 votes

Labour: 13,584 votes

Liberal Democrat: 5,614 votes

SNP: 5,664 votes