

St Paul's School: 13+ Maths Scholarship Paper 2011



School: St Paul's School
Subject: Maths Paper
Level: 13+
Time: 120 mins
Type: Scholarship Paper
Year in use: 2011

Q. \blacktriangle	Answer \blacktriangle	Solution \blacktriangle
1.	(i) -25 (ii) -19	
2.	(i) $\frac{25}{64}$ (ii) $\frac{1}{2}$	
3.	$x = 4$ or 5	
4.	(i) $x = 5$ (ii) $x = -8/5$	
5.	(i) $3 \times 5 \times 7 \times 11$ (ii) $7 \times 11 \times 13$	

6. (i) 110 km
(ii) $v = \frac{pb}{a}$

7. $a = 14$; $b = 12$

8. $(5, 0)$

9. (a) (i) $2x^2 + 3x - 2$
(ii) $2x^3 - 3x^2 - 11x + 6$
(b) $a = 2$; $b = -40$

10. (i) $x = 2$; $y = 4$
(ii) 2 beef pies

11. (a) (i) 24 , 28 , 32
(ii) 38 , 31 , 24
(iii) 26 , 28 , 29
(iv) 11 , 26 , 28
(b) 302

12. 2 units

13. (i) $x = 170^\circ$
(ii) $y = 75^\circ$
(iii) $z = 104^\circ$

14. 42 m

- 15.
- (i) 11
 - (ii) $-10\frac{1}{2}$
 - (iii) $x = \frac{27}{5}$
 - (iv) 15

- 16.
- (i) (a) £90 ; (b) 60%
 - (ii) 20

- 17.
- (i) $r\sqrt{3}$
 - (ii) $4(2 + \sqrt{3})r^2$

- 18.
- (i) 6 cm^2
 - (ii) 4.8 cm , 3.6 cm
 - (iii) 8.64 cm^2
 - (iv) $\Delta ABC = 2\Delta T = 12\text{cm}^2$. ΔABC has a base BC (5 cm) and height AP, so its area is also $(5 \times AP)/2$. So $(5 \times AP)/2 = 12\text{cm}^2$. Hence AP is 4.8 cm.
 - (v) 3.36 cm^2

- 19.
- (a) 3775
 - (b) 2550
 - (c) 2500
 - (d) -50
 - (e) -0.5