

# 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. 

Answer 

Solution 

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

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

(i)  $6 \text{ cm}^2$

(ii)  $4.8 \text{ cm}$  ,  $3.6 \text{ cm}$

(iii)  $8.64 \text{ cm}^2$

18. (iv)  $\Delta ABC = 2\Delta T = 12\text{cm}^2$ .  $\Delta ABC$  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)  $3.36 \text{ cm}^2$

(a) 3775

(b) 2550

19. (c) 2500

(d) -50

(e) -0.5