

**2011 Mathworks Math Contest  
Answers**

1) 13 and  $\frac{5}{7}$  hours

2) \$99.50

3) 11

4) 15

5) 14

Reason:  $23 \times 4 = 92$ .

6) 72

7)  $\frac{7}{10}$

8) 2880

9) 2:3 or  $\frac{2}{3}$

10)  $32 - 8\pi$

11) 2287

12)  $\frac{5}{\sqrt{21}}$

Reason: Easy to prove  $\left(\frac{AD}{AB}\right)^2 + \left(\frac{AD}{AC}\right)^2 = 1$ .

13) 503

Reason: Let  $\sqrt{x + \frac{1}{2}\sqrt{2011}} - \sqrt{x - \frac{1}{2}\sqrt{2011}} = c$ . Then  
 $2011 = c^2(4x - c^2)$ , which implies that  $c = 1$  and thus  $x = 503$ .

14)  $2\sqrt{137}$

15) 256