

## Leaving Certificate Examination 2007 – Foundation Level – Paper 1 Solutions

- 1.
- (i)  $\sqrt[3]{64 \cdot 64} = 4 \cdot 0133$
  - (ii)  $(19 \cdot 3)^3 = 7,200$
  - (iii)  $\frac{1}{72 \cdot 91} = 0 \cdot 0137$
  - (iv)  $52 \cdot 78 + 14 \cdot 3 \times 0 \cdot 4 = 52 \cdot 78 + 5 \cdot 72 = 58 \cdot 5$
  - (v)  $\frac{72}{90} \times \frac{100}{1} = 80\%$
  - (vi)  $\text{speed} = \frac{\text{distance}}{\text{time}} = \frac{153}{4 \cdot 5} = 34 \text{ km/hr}$
  - (vii)  $2650 \times 0 \cdot 0091 = \text{€}24 \cdot 12$
  - (viii)  $\frac{5}{7} + \frac{2}{3} = 1 \cdot 38$
  - (ix)  $\frac{(2 \cdot 05 \times 10^5) - (1 \cdot 35 \times 10^3)}{3 \cdot 67 \times 10^5} = 0 \cdot 555$
  - (x)  $\left(5 - \frac{13 \cdot 87}{18 \cdot 26}\right)(14 \cdot 25 - 11 \cdot 09) = 13 \cdot 400$
- 2.
- (a)
    - (i)  $6 \cdot 85 \text{ kg} = 6,850 \text{ g}$
    - (ii)  $462 \cdot 5 \text{ g} = 0 \cdot 4625 \text{ kg}$
  - (b)
    - (i)  $\text{Gross wage} = (35 \times 12 \cdot 48) + (7 \times 18 \cdot 72) = 436 \cdot 8 + 131 \cdot 04 = \text{€}567 \cdot 84$
    - (ii)  $\text{Gross tax} = 567 \cdot 84 \times 0 \cdot 2 = 113 \cdot 57$   
 $\text{Net tax} = \text{gross tax} - \text{tax credit} = 113 \cdot 57 - 64 \cdot 40 = \text{€}49 \cdot 17$
    - (iii)  $\text{PRSI} = 567 \cdot 84 \times 0 \cdot 04 = \text{€}22 \cdot 71$
    - (iv)  $\text{Take-home pay} = 567 \cdot 84 - 49 \cdot 17 - 22 \cdot 71 = \text{€}495 \cdot 96$
- 3.
- (a)  $\% \text{Error} = \frac{\text{actual error}}{\text{actual height}} \times \frac{100}{1} = \frac{0 \cdot 03}{1 \cdot 82} \times \frac{100}{1} = 1 \cdot 6\%$
  - (b)  $A = P \left(1 + \frac{r}{100}\right)^n = 940 \left(1 + \frac{6 \cdot 5}{100}\right)^3 = 940(1 \cdot 065)^3 = \text{€}1,135 \cdot 47$
  - (c)  $P = \frac{A}{\left(1 + \frac{r}{100}\right)^n} = \frac{25,000}{\left(1 + \frac{15}{100}\right)^3} = \frac{25,000}{1 \cdot 15^3} = \text{€}16,438$

4. (a)  $10x - 13 - 3x = 15$   
 $\Rightarrow 10x - 3x = 15 + 13$   
 $\Rightarrow 7x = 28$   
 $\Rightarrow x = 4$
- (b)  $3x - 2y = 15$  ...Equation I  
 $2x + y = 3$  ...Equation II
- I:  $3x - 2y = 15$   
II $\times 2$ :  $4x + 2y = 6$  ...add
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- $7x = 21 \Rightarrow \boxed{x = 3} \Rightarrow \boxed{y = -3}$
- (c) (i) Sean's Age:  $x$   
Siobhan's Age:  $x - 5$   
Grandfather's Age:  $7x + 3(x - 5) = 7x + 3x - 15 = 10x - 15$
- (ii)  $10x - 15 = 75$   
 $\Rightarrow 10x = 90$   
 $\Rightarrow x = 9 = \text{Sean's Age.}$

5. (a) (i)  $\{2, 3, 5, 7, 11\}$   
(ii)  $\{5, 11\}$
- (b)  $5x^2 - 9x - 2 = 0$   
 $\Rightarrow (5x + 1)(x - 2) = 0$   
 $\Rightarrow 5x + 1 = 0; \quad x - 2 = 0$   
 $\Rightarrow 5x = -1; \quad \boxed{x = 2}$   
 $\Rightarrow \boxed{x = -\frac{1}{5}}$
- (c) (i)  $7x + 4 < 25 \quad x \in \mathbb{N}$   
 $\Rightarrow 7x < 21$   
 $\Rightarrow x < 3 \Rightarrow x = \{0, 1, 2\}$
- (ii)  $31 - 4x \geq 19 \quad x \in \mathbb{N}$   
 $\Rightarrow -4x \geq -12$   
 $\Rightarrow 4x \leq 12$   
 $\Rightarrow x \leq 3 \Rightarrow x = \{0, 1, 2, 3\}$
- (iii)  $\{0, 1, 2\}$

6. (i) Bar-Chart
- (ii)  $\text{Average} = \frac{500 + 650 + 150 + 750 + 450}{5} = \frac{2,500}{5} = 500$
- (iii) Draw a horizontal line through 500 on the vertical axis.
- (iv) December
- (v)  $500 \times 0.65 = \text{€}325$

7. U shaped graph through the points  
 $\{(-3, 5), (-2, 0), (-1, -3), (0, -4), (1, -3), (2, 0), (3, 5)\}$
- (i)  $-2 < x < 2$
- (ii) Minimum value of  $f(x)$  is  $-4$
- (iii) Take value from graph.