IGCSE– Forming an equation/ solving quads & quad formula

Oct 04 Paper 4

5 Maria walks 10 kilometres to a waterfall at an average speed of x kilometres per hour.

(a) Write down, in terms of x, the time taken in hours. [1]

(b) Maria returns from the waterfall but this time she walks the 10 kilometres at an average speed of $(x + 1)$ kilometres per hour. The time of the return journey is 30 minutes less than the time of the first journey.
Write down an equation in x and show that it simplifies to $x^2 + x - 20 = 0$. [4]

(c) Solve the equation $x^2 + x - 20 = 0$. [2]

(d) Find the time Maria takes to walk to the waterfall. [2]

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6 **(a)** On 1st January 2000, Ashraf was x years old.
Bukki was 5 years older than Ashraf and Claude was twice as old as Ashraf.

(i) Write down in terms of x, the ages of Bukki and Claude on 1st January 2000. [2]

(ii) Write down in terms of x, the ages of Ashraf, Bukki and Claude on 1st January 2002. [1]

(iii) The product of Claude's age and Ashraf's age on 1st January **2002** is the same as the square of Bukki's age on 1st January **2000**.
Write down an equation in x and show that it simplifies to $x^2 - 4x - 21 = 0$. [4]

(iv) Solve the equation $x^2 - 4x - 21 = 0$. [2]

(v) How old was Claude on 1st January 2002? [1]

(b) Claude's height, h metres, is one of the solutions of $h^2 + 8h - 17 = 0$.

(i) Solve the equation $h^2 + 8h - 17 = 0$.

Show all your working and give your answers correct to 2 decimal places. [4]

(ii) Write down Claude's height, to the nearest centimetre. [1]

Oct 05 Paper 4

8 **(a)** **(i)** The cost of a book is $\$x$.
Write down an expression in terms of x for the number of these books which are bought for \$40. [1]

(ii) The cost of each book is increased by \$2.
The number of books which are bought for \$40 is now one less than before.
Write down an equation in x and show that it simplifies to $x^2 + 2x - 80 = 0$. [4]

(iii) Solve the equation $x^2 + 2x - 80 = 0$. [2]

(iv) Find the original cost of one book. [1]

(b) Magazines cost $\$m$ each and newspapers cost $\$n$ each.
One magazine costs \$2.55 more than one newspaper.
The cost of two magazines is the same as the cost of five newspapers.

(i) Write down two equations in m and n to show this information. [2]

(ii) Find the values of m and n. [3]