BaccalaurÉat gÉnÉral et technologique

# Session 2012

## ÉPREUVE SPÉCIFIQUE MENTION « SECTION EUROPÉENNE OU DE LANGUE ORIENTALE »

Académies de Paris-Créteil-Versailles

**Binôme : Anglais / Mathématiques**

**MAPPING**

**Sujet D1-07**

### *The first part of this page is a summary that can help you do the exercise.*

**Speed, distance and time:** calculations involving these three quantities are simple when the speed is constant. The formula connecting the quantities is distance = speed time.

**Quadratics :** the roots of the quadratic equation *a x*2 + *b x* + *c* = 0, where *a*  0, are given by the formula *x* = , if the discriminant  = *b*2 – 4 *ac* is a positive real number.

**EXERCISE:**

A route up a mountain is 20 km long.

John followed this route at an average speed of *x* km/h.

**(a)** Write down an expression, in terms of *x*, for the number of hours it took him to walk up the mountain.

**(b)** He came down the mountain by a different route. The length of this route was 25 km.

His average speed coming down the mountain was 2 km/h greater than his average speed going up the mountain.

Write down an expression, in terms of *x*, for the number of hours it took him to walk down.

**(c)** It took John 1½ hour less to come down than to go up.

Write down an equation in *x*, and show that it simplifies to 3*x*2 + 16*x* – 80 = 0.

**(d)** Solve the equation 3*x*2 + 16*x* – 80 = 0, giving both answers correct to 3 decimal places.

**(e)** Calculate, round to the nearest minute, the **total** time John took to go up and come down the mountain.