

- 8** Darpan runs a distance of 12 km and then cycles a distance of 26 km.
His running speed is x km/h and his cycling speed is 10 km/h faster than his running speed.
He takes a total time of 2 hours 48 minutes.

- (a)** An expression for the time, in hours, Darpan takes to run the 12 km is $\frac{12}{x}$.

Write an equation, in terms of x , for the total time he takes in hours.

..... [3]

- (b)** Show that this equation simplifies to $7x^2 - 25x - 300 = 0$.

[4]

- (c)** Use the quadratic formula to solve $7x^2 - 25x - 300 = 0$.
You must show all your working.

$x =$ or $x =$ [4]

- (d)** Calculate the number of minutes Darpan takes to run the 12 km.

..... min [2]