

$$(4) \cdot f(x) = x^2 - x + 2$$

$$f(x-2) = (x-2)^2 - (x-2) + 2 = x^2 - 5x - 14 =$$

$$= (x-7)(x+2) = 0 \begin{cases} \rightarrow X_1 = 7 \\ \rightarrow X_2 = -2 \end{cases} \quad \begin{matrix} X_1 + X_2 = 5 \\ \text{ANSWER: E} \end{matrix}$$

$$(5) \text{ Joe} = x$$

$$\text{Sue} = 2.5$$

$$d_1 = x \cdot 1$$

time = 1 hour

$$d_1 + d_2 = 42$$

$$d_2 = 2.5x \cdot 1$$

$$3.5x = 42$$

$$x = 12$$

$$D = 0.5 \cdot 12 \cdot 2.5 + 1.5 \cdot 12 = 33 \quad \text{ANSWER: C}$$

$$(6) a^4 + b^3 + c^2 = 2009$$

$$a = x^2, \quad b = y^2$$

$$(x^2)^4 + (y^2)^3 + c^2 = 2009$$

$$x^8 + y^6 + c^2 = 2009$$

$$2009 = 7^2 \cdot 41$$

$$\begin{matrix} a=4 \\ b=4 \end{matrix} \Bigg| \Rightarrow 4^4 + 4^3 + c^2 = 2009 \Rightarrow c^2 = 1689 \text{ (Not a perfect square)}$$

$$\begin{matrix} a=4 \\ b=9 \end{matrix} \Bigg| \Rightarrow 4^4 + 9^3 + c^2 = 2009 \Rightarrow c^2 = 1024 \\ \Rightarrow c = 32$$

$$a + b + c = 4 + 9 + 32 = 45$$

ANSWER: D