

Question 8 – 1:

8(a)	$\frac{12}{x} + \frac{26}{x+10} = 2.8$ oe isw	3	B2 for $\frac{12}{x} + \frac{26}{x+10}$ oe isw OR B1 for $\frac{26}{x+10}$ seen B1 for time = 2.8 or $\frac{168}{60}$ or $2\frac{48}{60}$ oe
8(b)	$12(x+10) + 26x = 2.8x(x+10)$ or better	M2	FT <i>their</i> time, provided 2 algebraic fractions one in x and other in $\pm x \pm 10$ M1 for $12(x+10) + 26x$ seen or better
	$12x + 120 + 26x = 2.8x^2 + 28x$	M1	FT <i>their</i> equation dep on M2
	$2.8x^2 - 10x - 120 = 0$ oe or $30x + 300 + 65x = 7x^2 + 70x$ or better leading to $7x^2 - 25x - 300 = 0$	A1	with no errors or omissions
8(c)	$\frac{[-]25 \pm \sqrt{([-]25)^2 - 4 \times 7 \times -300}}{2 \times 7}$ oe	B2	B1 for $\sqrt{([-]25)^2 - 4(7)(-300)}$ or better or for $\frac{[-]25 + \sqrt{q}}{2 \times 7}$ or $\frac{[-]25 - \sqrt{q}}{2 \times 7}$
	- 5 and 8.57 or 8.571...	B2	B1 for each or SC1 for final answers 5 and -8.57
8(d)	84 to 84.01...	2	FT $\frac{720}{\text{their positive answer}}$ to 3 sf or better M1 for $\frac{12}{\text{their positive answer}} [\times 60]$ oe