Question			Answer	Marks	AO	Guidance	
3	(a)		Total profit (or t) is large when price (or p) is high	B1 [1]	3.5b		
3	(b)		Passes through (0, 0) and (12, 0) hence $t = kp(12 - p)$ $k = 200$	B1 B1 [2]	3.1b 3.3	 Or $t = 200p(12 - p)$ Or $t = 200(12p - p^2)$	
3	(c)		$6400 = 200p(12 - p)$ oe $p^2 - 12x + 32 = 0$ $p = 4$, $p = 8$ $4 \le p \le 8$ Price must be between £4 and £8	M1 A1FT A1FT A1 [4]	3.4 1.1 1.1 3.4	$6400 = (\text{their } k)\, p(12 - p)$ Any correct equation in form $ap^2 + bp + c = 0$ BC, but any method allowed Allow $4 < p < 8$	 FT **(ii)** FT **(ii)**
3	(d)		E.g. $p = 0$ implies giving book for free. Unrealistic. oe E.g. When $p = 0$, $t = 0$; but t should be negative as would make a loss. Unrealistic. oe E.g. When $p = 12.1$, t is negative. Possibly realistic as could make a loss if p set too high. oe	E1 E1 [2]	3.2b 3.2b	Valid comment about $p = 0$ Valid comment about $p = 12.1$	