

2. Production of an item has fixed costs of \$10,000 and variable costs of \$2 per item. The relationship between price p , and quantity, q demanded is *linear*. Market research shows that 10,100 items are sold when the price is \$5 and 12,872 items are sold when the price is \$4.50.

(a) Express the cost, C , of producing q items.

(b) Recall that the demand curve is *linear*. Express q as a function of price p .

(c) Recall if you sell q items for $\$p$, then you will have $p \cdot q$ dollars of revenue. Use the work from (b) to express the revenue, R , from selling q items as *only* a function of q .

(d) How many items should the company produce to maximize profit?