1. What is the marginal cost for a perfectly competitive firm with cost function $C(Q) = 3Q^2+35$ that produces 5 goods?

   A. 54

   B. 110

   C. 30

   D. 50

2. H&R Block hires three accountants who complete 12 tax filings per hour. After they hire a fourth accountant, the number of tax filings completed increase to 14 per hour. Because the marginal product of the fourth accountant is _____ than the average product of the three accountants the average product must _____.

   A. Less, Fall

   B. Greater, Rise

   C. Greater, Fall

   D. Less, Rise

3. For a firm with cost function $C(Q) = 2Q^3 - 8Q^2 + 10Q + 28$, below what Price will they shut down?

Solution: We know firms decide to shut down when $P < AVC$ First we need to find AVC:

$$AVC = \frac{C(Q)}{Q} = 2Q^2 - 8Q + 10$$

We can get the $min(AVC)$ by $\frac{\partial AVC}{\partial Q}$

$$\frac{\partial AVC}{\partial Q} = 4Q - 8 = 0 \rightarrow Q = 2$$

Now we set $P = AVC$ at the Q found

$$P = AVC = 2(3)^2 - 8(2) + 10 = 8 - 16 + 10 = 2$$

4. Why do firms make zero profits in the Long-Run?

Solution: If firms are making positive profits, more firms will enter driving the market price down toward equilibrium. If firms are making negative profits, firms will exit the market driving the market price up toward equilibrium.