Chapter 5 3,5.

Chapter 6 6,10.

Chapter 5.3

a. As a long-run production function, this seems to be lacking a variable for capital equipment.

b. This production function says without any labor, paper can transform itself into stationery, which cannot be true in reality.

c. No, the marginal returns are both constant.

Chapter 5.5

9. Yes. It can be seen that $\alpha+\beta=1.1>1$, so the production function exhibits increasing returns to scale. Thus, increasing both L and K by 1% causes output to go up more than 1%.

b. If $\beta=0.2$, then $\alpha+\beta=1$, indicating that there would be constant returns to scale.

c. $\frac{Q}{L}=AP_L=A\cdot\frac{K^{\beta}}{L^{1-\alpha}}$, which also depends on A, K, L, so it does not depend only on α and β.

Chapter 6.6.

a. $AC=\frac{TC}{Q}$, so $TC=Q\cdot AC=3Q+4Q^2$

b. No. the firm's total costs are equal to zero when $Q=0$.

c. Loss. $3Q-(3Q+4Q^2)=-4Q^2$ if $Q>0$, $-4Q^2<0$. so this company is losing money.

d $MC=\frac{dTC}{dQ}=3+8Q$

Chapter 6. 10.

a. AVC = $14

AFC(Q=10,000) = 300,000 / 10,000 = 30

ATC = $44.

b. If the accountants pass, this will not be introduced.

However! His opinion is biased and we should introduce it since it can cover volatile cost.

$25 > $14

b. $20 > $14

We should still introduce it

c. $15 > $14

We should still introduce it.

d. $14.