The first example demonstrates development accounting, and shows how to obtain the productivity of India relative to the U.S. shown in Table 7.2. The production function is Cobb-Douglas with $\alpha = 1/3$. All values are expressed relative to the U.S. where the U.S. has a value of 1 for all the values. Now given output per worker ($y$) = 0.13, physical capital per worker ($k$) = 0.10, human capital per worker ($h$) = 0.74. The formula that we need to use is (7.2), which is

$$A_{\text{India}} = \frac{y_{\text{India}}}{A_{\text{US}} = \frac{y_{\text{US}}}{k_{\text{India}}^{\alpha} h_{\text{India}}^{1-\alpha}} \frac{k_{\text{US}}^{\alpha} h_{\text{US}}^{1-\alpha}}{k_{\text{US}}^{\alpha} h_{\text{US}}^{1-\alpha}}.$$  

We know that $\frac{y_{\text{India}}}{y_{\text{US}}} = 0.13$, $k_{\text{US}}^{\alpha} h_{\text{US}}^{1-\alpha} = 1$, $k_{\text{India}}^{\alpha} h_{\text{India}}^{1-\alpha} = 0.10^{1/3}0.74^{2/3} = 0.38$, thus

$$A_{\text{India}} = \frac{0.13}{0.38} = 0.34.$$  

The second example demonstrates growth accounting. Suppose we have the following information about Country A:

<table>
<thead>
<tr>
<th>Year</th>
<th>Output per worker ($y$)</th>
<th>Physical capital per worker ($k$)</th>
<th>Human capital per worker ($h$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>10</td>
<td>300</td>
<td>75</td>
</tr>
<tr>
<td>2010</td>
<td>20</td>
<td>400</td>
<td>200</td>
</tr>
</tbody>
</table>

We need to compute the average annual growth rate of $y$ ($\hat{y}$), the average annual growth rate of $k$ ($\hat{k}$), and average annual growth rate of $h$ ($\hat{h}$). Using the formula, we obtain

$$\hat{y} = \left(\frac{20}{10}\right)^{\frac{1}{10}} - 1 \approx 0.07 (7\%), \quad \hat{k} = \left(\frac{400}{300}\right)^{\frac{1}{10}} - 1 \approx 0.03 (3\%), \quad \hat{h} = \left(\frac{200}{75}\right)^{\frac{1}{10}} - 1 \approx 0.10 (10\%).$$  

The average annual productivity growth for Country A is

$$\hat{A} = \hat{y} - \alpha \hat{k} - (1-\alpha)\hat{h}.$$

For $\alpha = 0.33$, we have $\hat{A} = 0.07 - 0.33(0.03) - 0.67(0.10) = -0.007$ or approximately 0% per year.