1. During 2006, the British pound went from 1.7188 to 1.9586 against the U.S. dollar. By how much did the dollar appreciate (depreciated) against the pound? (10%)

**Answer.** \((1/1.9586 - 1/1.7188)/(1/1.7188) = -12.24\%\) (depreciated)

2. Explain the following key terms: arbitrage (5%); law of one price (5%); purchasing power parity (5%); unbiased forward rate (5%); international Fisher effect (5%); interest rate parity (5%).

**Answer. See textbook**

3. Two countries, the U.S. and England, produce only one good, wheat. Suppose the price of wheat is $3.25 in the U.S. and is £1.35 in England.

According to the law of one price, what should the $:£ spot exchange rate be? (5%)

**Answer.** Since the price of wheat must be the same in both nations, the exchange rate, \(e\), is \(3.25/1.35\) or \(e = 2.4074\).

Suppose the price of wheat over the next year is expected to rise to $3.50 in the U.S. and to £1.60 in England. What should the one-year $:£ forward rate be? (5%)

**Answer.** In the absence of uncertainty, the forward rate, \(f\), should be \(3.50/1.60\), or \(f = 2.1875\).

If the U.S. government imposes a tariff of $0.50 per bushel on wheat imported from England, what is the maximum possible change in the spot exchange rate that could occur? (10%)

**Answer.** If \(e\) is the exchange rate, then wheat selling in England at £1.35 will sell in the U.S. for \(1.35e + 0.5\), where 0.5 is the U.S. tariff on English wheat. To eliminate the possibility of arbitrage, \(1.35e + 0.5\) must be greater than or equal to $3.25, the price of wheat in the U.S. or \(e > 2.0370\). Thus, the maximum exchange rate change that could occur is \((2.4074 - 2.0370)/2.4074 = 15.38\%\). This solution assumes that the pound and dollar prices of wheat remain the same as before the tariff.

4. Suppose U.S. Dow Chemical receives quotes of $0.008242-45 for the yen and $0.03023-27 for the Taiwan dollar (NT$).
How many U.S. dollars will Dow Chemical receive from the sale of ¥50 million? (5%)

**Answer.** Dow must sell yen at the bid rate, meaning it will receive $412,100 \((50,000,000 \times 0.008242)\).

What is the U.S. dollar cost to Dow Chemical of buying ¥1 billion? (5%)

**Answer.** Dow must buy at the ask rate, meaning it will cost Dow $8,245,000 \((1,000,000,000 \times 0.008245)\) to buy ¥1 billion.

How many NT$ will Dow Chemical receive for U.S.$500,000? (5%)

**Answer.** Dow must sell at the bid rate for U.S. dollars (which is the reciprocal of the ask rate for NT$, or \(1/0.03027\)), meaning it will receive from this sale of U.S. dollars NT$16,518,005 \((500,000/0.03027)\).

How many yen will Dow Chemical receive for NT$200 million? (5%)

**Answer.** To buy yen, Dow must first sell the NT$200 million for U.S. dollars at the bid rate and then use these dollars to buy yen at the ask rate. The net result from these transactions is ¥733,292,905 \((200,000,000 \times 0.03023/0.008245)\).

What is the yen cost to Dow Chemical of buying NT$80 million? (5%)

**Answer.** Dow must sell the yen for dollars at the bid rate and then buy NT$ at the ask rate with the U.S. dollars. The net yen cost to Dow from carrying out these transactions is ¥293,812,182 \((80,000,000 \times 0.03027/0.008245)\).

5. Support the following quotas are received for spot, 30-day, and 180-day Swiss francs (SFr) and pounds sterling:

<table>
<thead>
<tr>
<th></th>
<th>£:</th>
<th>SFr:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spot</td>
<td>$2.0015-30</td>
<td>$0.6963-68</td>
</tr>
<tr>
<td>30-day</td>
<td>19-17</td>
<td>4-6</td>
</tr>
<tr>
<td>180-day</td>
<td>42-35</td>
<td>25-38</td>
</tr>
</tbody>
</table>

Please write up the outright rates in the following chart. (15%)

<table>
<thead>
<tr>
<th>Maturity</th>
<th>£:</th>
<th>Spread(%)</th>
<th>$Fr</th>
<th>Spread(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spot</td>
<td>(a)</td>
<td>(c)</td>
<td>(d)</td>
<td>0.072</td>
</tr>
<tr>
<td>30-day</td>
<td>(e)</td>
<td>(g)</td>
<td>(i)</td>
<td>(j)</td>
</tr>
<tr>
<td>180-day</td>
<td>(k)</td>
<td>(m)</td>
<td>(n)</td>
<td>0.7006</td>
</tr>
</tbody>
</table>

**Answer.** See textbook (PP.177)