Solution 1b), 419_m_15-1

$$F(0,T) = \left[\frac{1 + r(0,T)}{1 + r^*(0,T)} \right] S(0) = \left[1 + \frac{r(0,T) - r^*(0,T)}{1 + r^*(0,T)} \right] S(0)$$

Which country is domestic and foreign (*)?
This depends on the way the FX rate is quoted. Question gives 1.5527 as the number of US$ per £.
In this case, US$ is the domestic currency and £ is foreign.

Method of calculation for r^* (the foreign rate):

$$\frac{F(0,T)}{S(0)} = 1 + \frac{r(0,T) - r^*(0,T)}{1 + r^*(0,T)}$$

$$r^*(0,T) = r(0,T) - \left[\frac{F(0,T)}{S(0)} - 1 \right] (1 + r^*(0,T))$$

Calculating the foreign rate (Note typo in exam for 3 month):

6 month $r(0,T) = .0038/2 = .0019$ $(F(0,T) / S(0)) - 1 = (1.5510/1.5527) - 1 = -.00109487$

$r^*(0,T) = (.0019 + .00109487) / (1 - .00109487) = .00299815 \rightarrow .0059963 = r^*$ *(annualized!)*

3 month $r(0,T) = .0026/4 = .00065$ $(F(0,T) / S(0)) - 1 = (1.5517/1.5527) - 1 = -.000644$

$r^*(0,T) = (.00065 + .000644) / (1 - .000644) = .0012949 \rightarrow .0051795 = r^*$ *(annualized!)*