1. (a) 0.697 percent per month.
(b) 52.8 percent of months.
See the accompanying spreadsheet

2. The required rate of return, $r$, satisfies the equation $\frac{1*1.03}{r-0.03} = 50$ and so $r = 0.0506$.

3. 1.78%.

4. The price of the zero-coupon ten-year bond with a face value of $100 is $\frac{100}{1.019^{30}} = 68.63$. The ten-year bond with an 8% coupon rate is equivalent to two units of the bond with a 4% coupon rate minus a ten-year zero coupon bond. So the price of the ten-year bond with an 8% coupon rate has to be $2*105 - 68.63 = 141.37$.

5. The accrued interest is $\frac{56}{184} * \frac{2}{2} = 0.30$. The dirty price is $95.50+0.30=$95.80.