3b)

$$M_1 = 1 + P_{11} M_1 + P_{12} M_2 + P_{13} M_3$$

$$M_2 = 1 + P_{21} M_1 + P_{22} M_2 + P_{23} M_3$$

$$M_3 = 0$$

$$M_1 = 1 + P_{11} M_1 + P_{12} M_2$$

$$M_2 = 1 + P_{21} M_1 + P_{22} M_2$$

$$P_{11} = 0.2 \qquad P_{12} = 0.7$$

$$P_{21} = 0.2 \qquad P_{22} = 0.5$$

$$M_1 = 1 + 0.2 M_1 + 0.7 M_2$$

$$M_2 = 1 + 0.2 M_1 + 0.5 M_2$$

$$M_1 = 1 + 0.2 M_1 + 0.7 M_2$$
$$-(M_2 = 1 + 0.2 M_1 + 0.5 u_2)$$
$$\overline{\hspace{10cm}}$$

$$M_1 - M_2 = 0.2 M_2$$

$$M_1 = 1.2 M_2$$

$$1.2 M_2 = 1 + (0.2)(1.2) M_2 + 0.7 M_2$$

$$1.2 M_2 = 1 + 0.24 M_2 + 0.7 M_2$$

$$1.2 M_2 = 1 + 0.94 M_2$$

$$\frac{0.26 M_2 = 1}{0.26 \qquad 0.26}$$

$$\boxed{\begin{array}{l} M_2 = 3.846 \\ M_1 = 4.615 \end{array}}$$