5. $\frac{dB}{dt} = 0.085B - 12000$ **31.1**

6. (a) $\frac{dP}{dt} = 0.02P + (0.1 - 0.3) \Leftrightarrow \frac{dP}{dt} = 0.02P - 0.2$

(b) The population will decrease to zero. At $t = 0$, $P = 9$. $\frac{dP}{dt} = 0.02P - 0.2$ will be negative and will continue to be more negative as the population decreases.

(c) $0 = 0.02P - 0.2 \Rightarrow P = 10$