P5.1 (1)、$G(jw)H(jw)=\dfrac{50}{jw(1+0.1jw)(1+0.2jw)}$

$=\dfrac{-50j(1-0.1jw)(1-0.2jw)}{w(1+0.01w^2)(1+0.04w^2)}$

$=\dfrac{-15w-50(1-0.02w^2)j}{w(1+0.01w^2)(1+0.04w^2)}$

$\angle G(j0^+)H(j0^+)=-90°$, $|G(j0^+)H(j0^+)|=\infty$

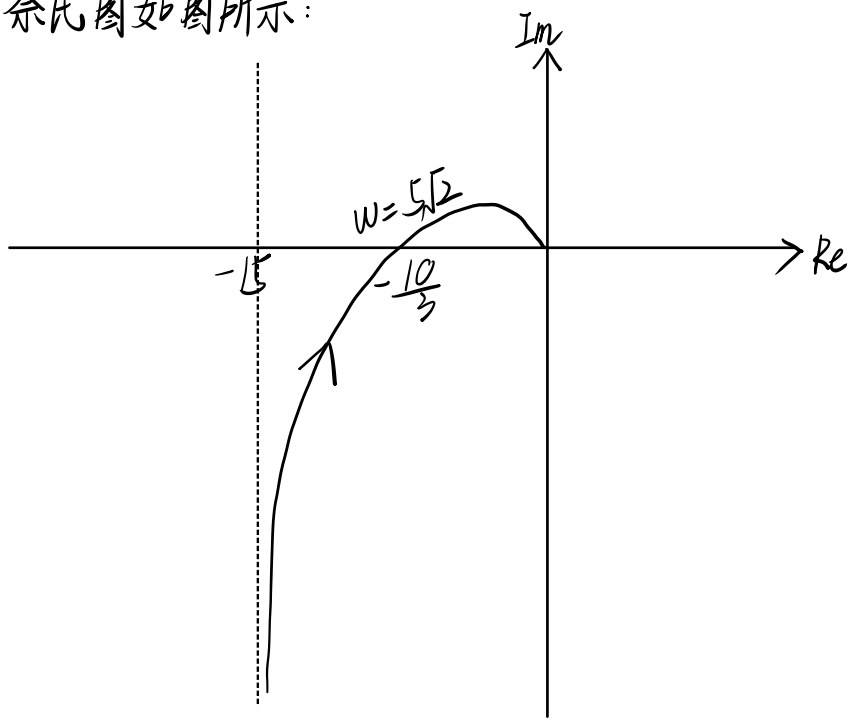
$\angle G(j\infty)H(j\infty)=-270°$, $|G(j\infty)H(j\infty)|=0$

渐近线：$\lim\limits_{w\to 0} Re[G(jw)H(jw)]=-15$

$Im[G(jw)H(jw)]=0$ 时，$1-0.02w^2=0$，$w=5\sqrt{2}$ rad/s.

$G(j5\sqrt{2})H(j5\sqrt{2})=-\frac{10}{3}$

奈氏图如图所示：



(2)、$G(jw)H(jw)=\frac{10}{jw(1+0.2jw)(jw-1)}=\frac{-10j(1-0.2jw)(jw+1)}{w(1+0.04w^2)(-w^2-1)}$

$=\frac{-8w+10(1+0.2w^2)j}{w(1+0.04w^2)(w^2+1)}$

$\angle G(j0^+)H(j0^+)=-270°,\ |G(j0^+)H(j0^+)|=\infty$

$\angle G(j\infty)H(j\infty)=-270°,\ |G(j\infty)H(j\infty)|=0$

渐近线：$\lim_{w\to 0} Re[G(jw)H(jw)]=-8$

除原点外与坐标轴无交点

奈氏图如图：