$B(x) = 4x^{1/2}$, $NB^\circ = 0$, $c = 1$, $\bar{p} = 2$

$$B(x) - px = NB^\circ$$

$$4x^{1/2} - 2x = 0$$

$$4x^{1/2} = 2x$$

$$16x = 4x^2$$

$$16 = 4x \Rightarrow \boxed{x^* = 4}$$

PATIENT

$$\max B(x) - px$$

$$\max 4x^{1/2} - 2x$$

$$2x^{-1/2} - 2 = 0$$

$$x^{-1/2} = 1$$

$$\boxed{\bar{x} = 1}$$

$$4x^{1/2} - 3x = 0$$

$$16x = 9x^2$$

$$\boxed{x^* = 16/9}$$

$$2x^{-1/2} - 3 = 0$$

$$\boxed{\bar{x} = 4/9}$$