$$\gamma(\pi/2) = \beta(\pi/4) = \beta(5\pi/4)$$

$$\gamma(\pi/4) = \beta(\pi/8) = \beta(9\pi/8)$$

$$\gamma(0) = \beta(0) = \beta(\pi)$$

$$\gamma(2\pi) = \beta(2\pi)$$

$$\gamma(3\pi/2) = \beta(3\pi/4) = \beta(7\pi/4)$$