BCE

$$E_{rror} = -(1-y)\log(1-D(G(z))) - y(\log(D(x)))$$

$$\min_G \max_D V(G,D) = E_{z\in p_z}(\log(1-D(G(z)))) + E_{x\in pdata}(\log(D(x)))$$

$\Rightarrow$ $p_g \approx pdata$

$$KL(P\|Q) = \sum_x P(x)\log\left(\frac{P(x)}{Q(x)}\right)$$
$$= \int_{-\infty}^{\infty} p(x)\log\left(\frac{P(x)}{Q(x)}\right)dx$$

$$JSD(P\|Q) = \frac{1}{2}(KL(P\|M) + KL(Q\|M))$$

donde $M = \frac{P+Q}{2}$

$$\Rightarrow D^* = \frac{pdata(x)}{pdata(x) + p_g(x)}$$

$$V(G,D) = \int_x pdata(x)\log(D(x))dx + \int_z p_z(z)\log(1-D(G(z)))dz$$

$$V(G,D) = \int_x p_{data}(x) \log(D(x))\,dx + \int_x p_g(x) \log(1 - D(x))\,dx$$

$$= \int_x \left(p_{data}(x) \log(D(x)) + p_g(x) \log(1 - D(x)) \right) dx$$