Without grid:

(left) $$\forall \varepsilon > 0, \exists \delta > 0, \quad |P(x) - P(\delta)| < \varepsilon$$ (right)

Thus, this is intertext, keeping alignment

$$\lim_{t \to 0} f(t) = f(x) \qquad \text{(blah blah)}$$

Inside grid, Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magnam aliquam quaerat.

left aligned $$x(2x - 1) = 0 \qquad \text{(factorize } x\text{)}$$

$$\therefore x = 0, \frac{1}{2} \qquad \blacksquare$$

intertext,

$$Q_t(a) = \frac{\sum_{i=1}^{t-1} \mathbb{1}_{A_i = a} X_i}{\sum_{i=1}^{t-1} \mathbb{1}_{A_i = a}} = \hat{\mu}_a(t-1) \qquad \text{(abc)}$$

for $\mathcal{E}_{\text{SG}}^2$: $$\frac{1}{2}\mathbb{P}(|X| - \mathbb{E}[X] \geq \varepsilon) \leq \exp\left(-\frac{\varepsilon^2}{2\sigma^2}\right) \qquad \text{(sgc)}$$

$$A_t = \arg\max_{a \in \mathcal{A}} Q_t(a)$$

thus, this is a very long multiline intertext that is auto spaced Lorem ipsum dolor sit amet, consectetur adipiscing elit.:

$$A_t = 2 \qquad \text{(2nd arm in } \mathcal{A}\text{)}$$

I can right flush text that takes up vertical space too

$$\therefore t = 5$$

From Equation (sgc), we know that...

As per Equation (abc) above,

For all $a \in \mathcal{A}$,

$$Q_t(a) \longrightarrow \mu_a \qquad \text{(abc)}$$

Now, Equation (abc) refers to the equation right above this paragraph, instead of the first one.

$$Q_t(a) \longrightarrow 0 \qquad \text{(abc)}$$

Now I can refer to both the new Equation (abc) and the old Equation (abc). I can also link to my equation using a **custom reference text**