

第 2 題

$$\vec{a} = (1, \sqrt{15}), \vec{b} = (6, 0), \vec{c} = (x, y)$$

$$(\vec{c} - \vec{a}) \cdot (\vec{c} - \vec{b}) = 0$$

$$(x-1, y-\sqrt{15}) \cdot (x-6, y) = 0$$

$$(x-1)(x-6) + y(y-\sqrt{15}) = 0$$

$$\left(x - \frac{7}{2}\right)^2 + \left(y - \frac{\sqrt{15}}{2}\right)^2 = (\sqrt{10})^2$$

$$\text{令 } x^2 + y^2 = k^2$$

$$|\vec{c}| = \sqrt{x^2 + y^2} = k \text{ 的最大值} = \sqrt{\left(\frac{7}{2}\right)^2 + \left(\frac{\sqrt{15}}{2}\right)^2} + \sqrt{10} = 4 + \sqrt{10}$$