

G1 数学 解答例

1

(1) $(x - \sqrt{3})^2 + (y - 1)^2 = 1$

(2) 3

(3) $\frac{\pi}{3}$

2

(1) $a_1 = \frac{2}{5}, \quad a_2 = \frac{13}{25}$

(2) $a_{n+1} = -\frac{1}{5}a_n + \frac{3}{5}$

(3) $a_n = -\frac{1}{10}\left(-\frac{1}{5}\right)^{n-1} + \frac{1}{2}$

(4) $\lim_{n \rightarrow \infty} a_n = \frac{1}{2}$

3

(1) $\overrightarrow{OC} = 2\vec{a} + 2\vec{b}$

(2) $\overrightarrow{OP} = 7\vec{a} + 2\vec{b}, \quad \overrightarrow{OQ} = 4\vec{a} + 8\vec{b}, \quad \overrightarrow{PQ} = -3\vec{a} + 6\vec{b}$

(3) $\cos \angle POQ = \frac{\sqrt{13}}{13}$

(4) $12\sqrt{3}$

4

(1) $f'(x) = 2 \sin^2 x - \sin x - 1$

(2) $f''(x) = \cos x(4 \sin x - 1)$

(3) 極小値 $-\frac{3}{4}\sqrt{3}$, 極大値 $\frac{3}{4}\sqrt{3}$

(4) 最小値 $-\frac{3}{4}\sqrt{3}$, 最大値 $\frac{3}{4}\sqrt{3}$

5

(1) $\frac{\pi}{2}$

(2) $\left(-\frac{\pi}{6}, \frac{3}{4}\right), \left(\frac{\pi}{6}, \frac{3}{4}\right)$

(3) $\sqrt{3} - \frac{\pi}{3}$