

1 解答

[問 1] $x = \frac{1}{4}, 8$

[問 2] (証明略)

[問 3] 20

[問 4] (証明略)

2 解答

[問 1] (1) $\vec{AE} = \frac{3}{4}\vec{p} + \frac{1}{4}\vec{q}$

(2) $\vec{AO} = (1-t)\frac{3}{8}\vec{p} + t\vec{q}$

(3) $\vec{AO} = \frac{1}{3}\vec{p} + \frac{1}{9}\vec{q}$

[問 2] $a = \frac{3}{14}$

3 解答

[問 1] (1) $m = 1023$

(2) 存在しない (証明略)

(3) $x = 1, y = -2$ など

(4) $x = 511n + 1, y = -1023n - 2$ (n は整数)

[問 2] (1) $x = -n, y = cn + 1$ (n は整数)

(2) $x = -p, y = q + 1$ など

4 解答

[問 1] (1) $y = \frac{\sqrt{2}}{2} \left(x + 1 - \frac{\pi}{4} \right)$

(2) $S\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{8}\pi^2 + \frac{\sqrt{2}}{2}\pi - 2$

[問 2] $a = \frac{\pi}{2}$ のとき最小となり, 最小値は $S\left(\frac{\pi}{2}\right) = \pi - 2$