1

(i) 最小値 5、最大値 15

(ii) $\dfrac{25}{108}$

(iii) $a_1 = \dfrac{2}{3}$ $a_2 = \dfrac{4}{9}$

(iv) $a_{n+1} = -\dfrac{1}{3}a_n + \dfrac{2}{3}$

(v) $a_n = \dfrac{1}{2}\left\{1 - \left(-\dfrac{1}{3}\right)^n\right\}$

(vi) $\dfrac{20}{61}$

2

(i) $x = y^2$

(ii) $\dfrac{t}{t^2-1}(t>1)$

(iii) $(1, 0)$

(iv) $\dfrac{25}{36}\sqrt{15}$

3

(i) e^{-1} $(x=1)$

(ii) 極小値 0 $(x=0)$, 極大値 $4\,e^{-2}$ $(x=2)$

(iii) n $(\geqq 3)$ が奇数のとき，$(0,0)$，$(n\pm\sqrt{n},\ (n\pm\sqrt{n})^n\,e^{-n\mp\sqrt{n}})$ n $(\geqq 3)$ が偶数のとき，$(n\pm\sqrt{n},\ (n\pm\sqrt{n})^n\,e^{-n\mp\sqrt{n}})$

(iv) 略

(v) $I_{n+1}=(n+1)I_n-2^{n+1}\,e^{-2}$

4

(i) $\left(b,\ \dfrac{a-b}{2},\ \dfrac{a-b}{2}\right)$

(ii) $b \leqq \dfrac{a}{3}$

(iii) $S = \dfrac{\sqrt{3}}{2}b(a-b)$

(iv) $a = 6$