１解答

[問 1] (1) $a=1,\ b=1, N=21$

(2) 15 桁

(3) 93128

[問 2] (1) $x=0:\ n^2+1$

$x=1:\ n^2$

$x=2:\ n^2$

$x=3:\ n^2-2$

(2) $\dfrac{1}{3}(8n^3+7n+3)$

２解答

[問 1] (1) $f(-1)=0,\ f(0)=1,\ f(1)=2$

(2) $(x+1)(x^2-x+1)$

(3) $-1, \frac{1\pm\sqrt{3}i}{2}$

(4) $2,\ -1\pm\sqrt{3}i$

[問 2] (1) 商は $x+2a$, 余りは $2a^2+b$

(2) $p=a,\ q=b-1(=\frac{a^2}{4}-1)$

(3) $a=-2,\ b=2$

３解答

[問 1] $\ell_1 : y=\frac{r\sqrt{1-r^2}}{1-r^2}x$ または $-r^2x+(r\sqrt{1-r^2})x=0$

[問 2] $\frac{\sqrt{2}}{2}$

[問 3] $\frac{1}{2}-\frac{\pi}{8}$

[問 4] $\frac{\sqrt{3}}{4}-\frac{\pi}{12}(=\frac{3\sqrt{3}-\pi}{12})$

４解答

[問 1] (1) $a=\dfrac{1}{4}$

(2) $x=-\dfrac{\pi}{6}$のとき　極大値$\dfrac{\pi+15\sqrt{3}}{24}$

$x=-\dfrac{5}{6}\pi$のとき　極小値$\dfrac{5\pi-15\sqrt{3}}{24}$

[問 2] $-\dfrac{3}{4}<a<\dfrac{3}{2}$