

【1】

(1) (i) 3

(ii) $\sqrt{5}$

(2) C の式: $y = \frac{3}{2}x^2 + 6x + 6$

C' の式: $y = \frac{3}{2}x^2 - 3x + 1$

(3) $\cos B = \frac{3}{4}$

$\triangle ABC$ の面積 $= \frac{15\sqrt{7}}{4}$

(4) $BP : PE = 3 : 1$

(5) x の値の範囲: $x > 4$

不等式の解: $4 < x \leq 7$

(6) $\alpha + \beta = 1$

$\alpha^5 + \beta^5 = 1$

【2】

(1) -3

(2) $S_{n+1} = 2S_n - 3$

$S_n = -6 \cdot 2^{n-1} + 3$ [別解] $S_n = -3(2^n - 1)$

(3) $a_{n+1} = 2a_n$

$a_n = -3 \cdot 2^{n-1}$

【3】

(1) $\overrightarrow{OA} \cdot \overrightarrow{OB} = 0$

(2) $BC = \sqrt{\frac{16}{5}} = \frac{4\sqrt{5}}{5}$

(3) $\frac{2\sqrt{3}}{3}$

【4】

(1) 省略

(2) $\frac{5}{2}$

(3) $g'(x) = \frac{1}{\sqrt{1-x^2}}$