

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