

4663

$$\alpha) x^2 - 4x + 4 = 4\lambda x - 3\lambda \Leftrightarrow$$

$$x^2 - (4 + 4\lambda)x + 4 + 3\lambda = 0$$

$$\beta) \Delta > 0 \Leftrightarrow 16(1 + \lambda)^2 - 4(4 + 3\lambda) > 0$$

$$\Leftrightarrow \cancel{16} + 32\lambda + 16\lambda^2 - \cancel{16} - 12\lambda > 0$$

$$\Leftrightarrow 16\lambda^2 + 20\lambda > 0 \Leftrightarrow 4\lambda^2 + 5\lambda > 0$$

$\lambda$	$-\infty$	$-\frac{5}{4}$	$0$	$+\infty$
$4\lambda^2 + 5\lambda$	+	0	-	+

$$\lambda < -\frac{5}{4} \quad \text{ή} \quad \lambda > 0$$

$$\delta) \text{(i)} S = x_1 + x_2 = \frac{4 + 4\lambda}{1} = 4(\lambda + 1)$$

$$P = x_1 \cdot x_2 = 4 + 3\lambda$$

$$\begin{aligned} \text{(ii)} \quad A &= 16x_1x_2 + 9 - 12(x_1 + x_2) = \\ &= 16 \cdot (4 + 3\lambda) + 9 - 12 \cdot 4(\lambda + 1) \\ &= 64 + 48\lambda + 9 - 48\lambda - 48 \\ &= 25 \end{aligned}$$