1. $\sqrt{\left(\sqrt{3}-2\right)^2}-\sqrt{\left(2-\sqrt{3}\right)^2}$을 계산하면?

① $1-\sqrt{3}$ ② $5-3\sqrt{3}$ ③ 0

④ $-5-\sqrt{3}$ ⑤ $5-\sqrt{3}$

해설

$\sqrt{3}-2<0,\ 2-\sqrt{3}>0$ 이므로

$$\begin{aligned}|\sqrt{3}-2|-|2-\sqrt{3}| &= -\left(\sqrt{3}-2\right)-\left(2-\sqrt{3}\right)\\ &= -\sqrt{3}+2-2+\sqrt{3}\\ &= 0\end{aligned}$$

2. $\dfrac{\sqrt{2}-\sqrt{3}}{\sqrt{2}+\sqrt{3}}-\dfrac{\sqrt{2}+\sqrt{3}}{\sqrt{2}-\sqrt{3}}$ 를 계산하면?

① $4\sqrt{6}$ ② $4\sqrt{2}$ ③ $4\sqrt{3}$ ④ $2\sqrt{6}$ ⑤ $3\sqrt{6}$

해설

$$\frac{(\sqrt{2}-\sqrt{3})^2-(\sqrt{2}+\sqrt{3})^2}{(\sqrt{2}+\sqrt{3})(\sqrt{2}-\sqrt{3})}=\frac{-2\sqrt{6}-2\sqrt{6}}{-1}=4\sqrt{6}$$

3. 다음 식을 간단히 나타낸 것은?

$$\frac{2}{1+\sqrt{2}}-\left(1+\sqrt{2}\right)^2$$

① -5 ② -4 ③ -3 ④ -2 ⑤ -1

해설

$$\frac{2}{1+\sqrt{2}}=\frac{2\left(1-\sqrt{2}\right)}{\left(1+\sqrt{2}\right)\left(1-\sqrt{2}\right)}=-2+2\sqrt{2}$$

$$\left(1+\sqrt{2}\right)^2=3+2\sqrt{2}$$

$\therefore$ (준식) $=-2+2\sqrt{2}-3-2\sqrt{2}=-5$

4. $a = \dfrac{2-\sqrt{3}}{2}$, $b = \dfrac{2+\sqrt{3}}{2}$ 일 때, $a^2 + 2ab + b^2$ 의 값은?

① 2 ② 3 ③ 4 ④ 5 ⑤ 6

해설

$a^2 + 2ab + b^2 = (a+b)^2$

$= \left(\dfrac{2-\sqrt{3}}{2} + \dfrac{2+\sqrt{3}}{2} \right)^2$

$= \left(\dfrac{4}{2} \right)^2 = 4$