

1. $\sqrt{(\sqrt{7}-3)^2}-\sqrt{(3-\sqrt{7})^2}$ 을 간단히 하면?

- ① 0 ② $6-2\sqrt{7}$ ③ 6
④ $\sqrt{6}$ ⑤ $3+\sqrt{7}$

해설

$$\begin{aligned} &\sqrt{7} < 3 = \sqrt{9} \text{ 이므로} \\ &\sqrt{(\sqrt{7}-3)^2}-\sqrt{(3-\sqrt{7})^2} \\ &= |\sqrt{7}-3|-|3-\sqrt{7}| \\ &= -(\sqrt{7}-3)-(3-\sqrt{7}) \\ &= -\sqrt{7}+3-3+\sqrt{7}=0 \end{aligned}$$

2. 다음을 간단히 하라.

$$\sqrt{(\sqrt{13}-3)^2} + \sqrt{(3-\sqrt{13})^2}$$

▶ 답 :

▷ 정답 : $2\sqrt{13}-6$

해설

$\sqrt{13} > 3$ 이므로

$$\sqrt{(\sqrt{13}-3)^2} + \sqrt{(3-\sqrt{13})^2}$$

$$= \sqrt{13}-3-(3-\sqrt{13})$$

$$= \sqrt{13}-3-3+\sqrt{13}$$

$$= 2\sqrt{13}-6$$

3. $\sqrt{(3-2\sqrt{2})^2} - \sqrt{(2\sqrt{2}-3)^2}$ 을 간단히 하면?

① $6-4\sqrt{2}$

② $-4\sqrt{2}$

③ 6

④ 0

⑤ $-6+4\sqrt{2}$

해설

$3 > 2\sqrt{2}$ 이므로

$$|3-2\sqrt{2}| - |2\sqrt{2}-3|$$

$$= 3-2\sqrt{2} + 2\sqrt{2}-3 = 0$$

4. $\sqrt{(2-\sqrt{2})^2}-\sqrt{(1-\sqrt{2})^2}$ 을 간단히 하면?

- ① 1 ② -1 ③ $3-2\sqrt{2}$
④ $-3+2\sqrt{2}$ ⑤ $1-2\sqrt{3}$

해설

$1 < \sqrt{2} < 2$ 이므로 $2-\sqrt{2} > 0$, $1-\sqrt{2} < 0$

$$\begin{aligned} |2-\sqrt{2}| - |1-\sqrt{2}| &= 2-\sqrt{2} + 1-\sqrt{2} \\ &= 3-2\sqrt{2} \end{aligned}$$

5. $\sqrt{(4-2\sqrt{3})^2} - \sqrt{(3\sqrt{3}-4)^2}$ 을 간단히 하여라.

▶ 답 :

▷ 정답 : $8-5\sqrt{3}$

해설

$2\sqrt{3} = \sqrt{12} < 4 = \sqrt{16} < \sqrt{27} = 3\sqrt{3}$ 이므로

$$\sqrt{(4-2\sqrt{3})^2} - \sqrt{(3\sqrt{3}-4)^2}$$

$$= 4 - 2\sqrt{3} - (3\sqrt{3} - 4)$$

$$= 4 - 2\sqrt{3} - 3\sqrt{3} + 4$$

$$= 8 - 5\sqrt{3}$$

6. $\sqrt{(\sqrt{3}-2)^2} - \sqrt{(2-\sqrt{3})^2}$ 을 계산하면?

① $1 - \sqrt{3}$

② $5 - 3\sqrt{3}$

③ 0

④ $-5 - \sqrt{3}$

⑤ $5 - \sqrt{3}$

해설

$$\begin{aligned}\sqrt{3}-2 < 0, \quad 2-\sqrt{3} > 0 \text{ 이므로} \\ |\sqrt{3}-2| - |2-\sqrt{3}| &= -(\sqrt{3}-2) - (2-\sqrt{3}) \\ &= -\sqrt{3}+2-2+\sqrt{3} \\ &= 0\end{aligned}$$

7. $\sqrt{(2\sqrt{5}-3\sqrt{2})^2}-\sqrt{(3\sqrt{2}-2\sqrt{5})^2}$ 을 계산하여라.

▶ 답 :

▷ 정답 : 0

해설

$$\begin{aligned}2\sqrt{5} &= \sqrt{20} > \sqrt{18} = 3\sqrt{2} \text{ 이므로} \\ \sqrt{(2\sqrt{5}-3\sqrt{2})^2} - \sqrt{(3\sqrt{2}-2\sqrt{5})^2} \\ &= 2\sqrt{5} - 3\sqrt{2} + (3\sqrt{2} - 2\sqrt{5}) \\ &= 0\end{aligned}$$

8. $\sqrt{(1-\sqrt{5})^2} - \sqrt{(\sqrt{5}+3)^2}$ 을 간단히 하여라.

▶ 답 :

▷ 정답 : -4

해설

$1 - \sqrt{5} < 0$ 이므로 $\sqrt{(1 - \sqrt{5})^2} = \sqrt{5} - 1$

(준식) $= \sqrt{5} - 1 - (\sqrt{5} + 3) = -4$

9. $\sqrt{(\sqrt{3}-1)^2} + \sqrt{(\sqrt{3}-2)^2}$ 을 계산하여라.

▶ 답 :

▷ 정답 : 1

해설

$$\sqrt{3}-1 > 0 \text{ 이므로 } \sqrt{(\sqrt{3}-1)^2} = \sqrt{3}-1$$

$$\sqrt{3}-2 < 0 \text{ 이므로}$$

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

$$\therefore \sqrt{(\sqrt{3}-1)^2} + \sqrt{(\sqrt{3}-2)^2}$$

$$= \sqrt{3}-1 - \sqrt{3}+2 = 1$$