

1. $\sqrt{\sqrt{81}} - \sqrt{0.09} + \sqrt{(0.9)^2} - \sqrt{\frac{1}{16}}$ 을 계산하면?

① 3.05

② 3.15

③ 3.25

④ 3.35

⑤ 3.45

해설

$$(\text{준식}) = 3 - 0.3 + 0.9 - \frac{1}{4} = 3.35$$

2. 다음 중 가장 큰 값은?

① $\sqrt{4^2} - \sqrt{2^2}$

② $\sqrt{3^2} + \sqrt{2^2}$

③ $\sqrt{(-5)^2} - \sqrt{(-2)^2}$

④ $\sqrt{3^2} - \sqrt{(-2)^2}$

⑤ $\sqrt{25} + (-\sqrt{2})^2$

해설

① $\sqrt{4^2} - \sqrt{2^2} = 4 - 2 = 2$

② $\sqrt{3^2} + \sqrt{2^2} = 3 + 2 = 5$

③ $\sqrt{(-5)^2} - \sqrt{(-2)^2} = 5 - 2 = 3$

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

⑤ $\sqrt{25} + (-\sqrt{2})^2 = 5 + 2 = 7$

이므로 $\sqrt{25} + (-\sqrt{2})^2$ 가 가장 크다.

3. 다음 중 계산 한 값이 옳은 것은?

① $\sqrt{3^2} - \sqrt{(-5)^2} + \sqrt{2^2} = 10$

② $\sqrt{(-2)^2} - (-\sqrt{3})^2 - \sqrt{5^2} = 0$

③ $\sqrt{\left(\frac{2}{5}\right)^2} + \sqrt{\frac{9}{25}} - \sqrt{\left(\frac{6}{5}\right)^2} = -\frac{1}{5}$

④ $\sqrt{2^2} \times \sqrt{\left(\frac{1}{2}\right)^2} + \sqrt{\left(-\frac{1}{2}\right)^2} = 0$

⑤ $\sqrt{3^2} + \sqrt{4^2} - \sqrt{(-5)^2} = 12$

해설

① $\sqrt{3^2} - \sqrt{(-5)^2} + \sqrt{2^2} = 3 - 5 + 2 = 0$

② $\sqrt{(-2)^2} - (-\sqrt{3})^2 - \sqrt{5^2} = 2 - 3 - 5 = -6$

③ $\sqrt{\left(\frac{2}{5}\right)^2} + \sqrt{\frac{9}{25}} - \sqrt{\left(\frac{6}{5}\right)^2} = \frac{2}{5} + \frac{3}{5} - \frac{6}{5} = -\frac{1}{5}$

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

⑤ $\sqrt{3^2} + \sqrt{4^2} - \sqrt{(-5)^2} = 3 + 4 - 5 = 2$

4. $\sqrt{121} - \sqrt{(-6)^2}$ 을 계산하여라.

① 1

② 3

③ 5

④ 7

⑤ 9

해설

$$11 - 6 = 5$$

5. 다음 식의 계산 중 바르지 못한 것은?

- ① $\sqrt{5^2} \times \sqrt{\left(-\frac{3}{5}\right)^2} = 3$ ② $\sqrt{0.04} \div \sqrt{10000} = 200$
③ $-\sqrt{49} + \left(\sqrt{13}\right)^2 = 6$ ④ $\sqrt{10^2} - \sqrt{(-9)^2} = 1$
⑤ $\sqrt{(-20)^2} - \sqrt{400} = 0$

해설

- ② $\sqrt{0.04} \div \sqrt{10000} = 0.002$

6. $a > 0, b < 0$ 일 때, $\sqrt{(2a)^2} + \sqrt{(-a)^2} - \sqrt{(5b)^2}$ 을 간단히 하면?

① $a - 5b$

② $a + 5b$

③ $3a - 5b$

④ $3a + 5b$

⑤ $5a - 5b$

해설

$$2a + a - (-5b) = 3a + 5b$$

7. $a > 0$ 일 때, 다음 식을 간단히 하면?

$$\sqrt{(-a)^2} + \sqrt{4a^2} - \sqrt{(-5a)^2}$$

- ① $-3a$ ② $-2a$ ③ $-a$ ④ a ⑤ $2a$

해설

$$\begin{aligned} & a > 0 \text{ 일 때} \\ & \sqrt{(-a)^2} + \sqrt{4a^2} - \sqrt{(-5a)^2} \\ & = -(-a) + 2a - (5a) \\ & = a + 2a - 5a \\ & = -2a \end{aligned}$$

8. $a > 0, b < 0$ 일 때, 다음 중 옳은 것은?

- ① $\sqrt{9a^2} \times \sqrt{(-6b)^2} = 18ab$
- ② $-\sqrt{(3a)^2} \div \sqrt{(-2a)^2} = \frac{3}{2}a$
- ③ $\sqrt{(-5b)^2} - \sqrt{16b^2} = b$
- ④ $2\sqrt{a^2} \times \sqrt{(-b)^2} + \sqrt{25a^2b^2} = -7ab$
- ⑤ $\sqrt{a^2} + \sqrt{(-b)^2} = a + b$

해설

- ① $\sqrt{9a^2} \times \sqrt{(-6b)^2} = 3a \times (-6b) = -18ab$
- ② $-\sqrt{(3a)^2} \div \sqrt{(-2a)^2} = \frac{3}{2}$
- ③ $\sqrt{(-5b)^2} - \sqrt{16b^2} = |5b| - |4b| = -5b + 4b = -b$
- ⑤ $\sqrt{a^2} + \sqrt{(-b)^2} = a - b$

9. $a < 0$ 일 때, $\sqrt{81a^2} \div (-\sqrt{3a})^2 + \sqrt{(-0.5a)^2} \times \left(\sqrt{\frac{1}{5}a}\right)^2$ 을 계산하면?

- ① $0.1a^2 - 3$ ② $0.1a^2 + 3$ ③ $0.5a^2 - 3$
④ $0.5a^2 + 3$ ⑤ $a^2 - 3$

해설

$$\begin{aligned} & \sqrt{81a^2} \div (-\sqrt{3a})^2 + \sqrt{(-0.5a)^2} \times \left(\sqrt{\frac{1}{5}a}\right)^2 \\ &= -9a \times \left(-\frac{1}{3a}\right) + (-0.5a) \times \left(-\frac{1}{5}a\right) \\ &= 3 + 0.1a^2 \end{aligned}$$

10. $a > 0$ 일 때, $A = \sqrt{(-a)^2} + (-\sqrt{a})^2 + \sqrt{a^2} - \sqrt{a^2}$ 일 때, $\sqrt{A}$ 의 값은?

① $-3a$

② $-2a$

③ a

④ $\sqrt{2a}$

⑤ $\sqrt{3a}$

해설

$$A = |-a| + a + |a| - |a| = 2a$$

$$\sqrt{A} = \sqrt{2a}$$