

1. 다음 식을 간단히 나타낸 것 중 틀린 것은?

- ① $\frac{4}{\sqrt{10}} \times \sqrt{50} \div \sqrt{8} = \sqrt{10}$
② $\frac{\sqrt{48}}{3} \div \sqrt{\frac{1}{6}} \times \left(-\frac{3}{\sqrt{2}}\right) = -12$
③ $2\sqrt{21} \div \sqrt{7} \times \sqrt{3} = 6\sqrt{3}$
④ $\frac{2}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{5}} \times \frac{3\sqrt{5}}{\sqrt{6}} = \sqrt{6}$
⑤ $3\sqrt{14} \div (-\sqrt{7}) \times \sqrt{6} = -6\sqrt{3}$

해설

- ① $\frac{4}{\sqrt{10}} \times \sqrt{50} \div \sqrt{8} = \frac{4}{\sqrt{10}} \times \sqrt{50} \times \frac{1}{\sqrt{8}}$
 $= \frac{2\sqrt{5}}{\sqrt{2}} = \sqrt{10}$
② $\frac{\sqrt{48}}{3} \div \sqrt{\frac{1}{6}} \times \left(-\frac{3}{\sqrt{2}}\right) = \frac{4\sqrt{3}}{3} \times \sqrt{6} \times \left(-\frac{3}{\sqrt{2}}\right)$
 $= \frac{4\sqrt{3}}{3} \times (-3\sqrt{3})$
 $= -12$
③ $2\sqrt{21} \div \sqrt{7} \times \sqrt{3} = 2\sqrt{\frac{21}{7}} \times \sqrt{3}$
 $= 2\sqrt{3} \times \sqrt{3} = 6$
④ $\frac{2}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{5}} \times \frac{3\sqrt{5}}{\sqrt{6}} = 6\sqrt{\frac{3 \times 5}{3 \times 5 \times 6}}$
 $= 6 \times \sqrt{\frac{1}{6}} = \sqrt{6}$
⑤ $3\sqrt{14} \div (-\sqrt{7}) \times \sqrt{6} = 3 \times \left(-\frac{\sqrt{14}}{\sqrt{7}}\right) \times \sqrt{6}$
 $= 3 \times (-\sqrt{2}) \times \sqrt{6}$
 $= -6\sqrt{3}$

2. $ab = 2$ 일 때, $a\sqrt{\frac{8b}{a}} + b\sqrt{\frac{32a}{b}}$ 의 값은? (단, $a > 0, b > 0$)

① 2

② 4

③ 5

④ 12

⑤ 24

해설

$$\begin{aligned} & a\sqrt{\frac{8b}{a}} + b\sqrt{\frac{32a}{b}} \\ &= a\frac{\sqrt{8b} \times \sqrt{a}}{\sqrt{a} \times \sqrt{a}} + b\frac{\sqrt{32a} \times \sqrt{b}}{\sqrt{b} \times \sqrt{b}} \\ &= \sqrt{8ab} + \sqrt{32ab} \\ & ab = 2 \text{를 대입하면} \\ & \sqrt{8ab} + \sqrt{32ab} = \sqrt{16} + \sqrt{64} = 4 + 8 = 12 \end{aligned}$$