

S 74 Nr. 27

$$a) 10^{\sqrt{2}} \cdot 10^{-\sqrt{2}} = \frac{10^{\sqrt{2}}}{10^{\sqrt{2}}} = \left(\frac{10}{10}\right)^{\sqrt{2}} = 1^{\sqrt{2}} = \underline{\underline{1}}$$

2. PS

$$\text{oder } 10^{\sqrt{2} - \sqrt{2}} = 10^0 = \underline{\underline{1}}$$

1. PS

$$b) 5^{\sqrt{8}} : 5^{\sqrt{2}} = 5^{\sqrt{4 \cdot 2} - \sqrt{2}} = 5^{2\sqrt{2} - \sqrt{2}} = 5^{\sqrt{2}} = \underline{\underline{5}}$$

1 PS

$$c) 14^{\sqrt{3}} : 7^{\sqrt{3}} = \left(\frac{14}{7}\right)^{\sqrt{3}} = \underline{\underline{2^{\sqrt{3}}}}$$

2. PS

$$d) (3^{\sqrt{2}})^{2\sqrt{2}} = 3^{\sqrt{2} \cdot 2 \cdot \sqrt{2}} = 3^{\sqrt{2} \cdot \sqrt{2} \cdot 2} = 3^{2 \cdot 2} = \underline{\underline{3^4}}$$

3 PS

$$e) (3^{\sqrt{4 \cdot 5}})^{\sqrt{2}} = 3^{\sqrt{4 \cdot 5} \cdot \sqrt{2}} = 3^{\sqrt{4 \cdot 5 \cdot 2}} = 3^{\sqrt{9}} = \underline{\underline{3^3}}$$

$$f) (12^{\sqrt{2}} \cdot 12^{\sqrt{3}})^{\sqrt{2}} = 12^{\sqrt{2} \cdot \sqrt{2}} \cdot 12^{\sqrt{3} \cdot \sqrt{2}} = 12^2 \cdot 12^{\sqrt{3 \cdot 2}} = \underline{\underline{12^2 \cdot 12^{\sqrt{6}}}}$$

S 74 Nr. 28

$$a) (\sqrt{2}^{\sqrt{3}}) \cdot (\sqrt{2}^{\sqrt{3}}) = (\sqrt{2} \cdot \sqrt{2})^{\sqrt{3}} = \underline{\underline{2^{\sqrt{3}}}}$$

→ 2 PS

$$b) \sqrt{3}^{\sqrt{5}} : (2 \cdot \sqrt{3})^{\sqrt{5}} = \left(\frac{\sqrt{3}}{2\sqrt{3}}\right)^{\sqrt{5}} = \left(\frac{1}{2}\right)^{\sqrt{5}} = \frac{1^{\sqrt{5}}}{2^{\sqrt{5}}} = 2^{-\sqrt{5}}$$

→ 2 PS → 2. PS

$$c) (\sqrt{2} \cdot \sqrt{3})^{\sqrt{12}} = (\sqrt{2 \cdot 3})^{\sqrt{12}} = \left(6^{\frac{1}{2}}\right)^{\sqrt{12}} = 6^{\frac{\sqrt{12}}{2}} = 6^{\sqrt{\frac{12}{4}}} = \underline{\underline{6^{\sqrt{3}}}}$$

2 PS → 3. PS

$$d) (\sqrt[3]{4} : \sqrt[3]{2})^{6 \cdot \sqrt{2}} = \left(\left(\frac{4}{2}\right)^{\frac{1}{3}}\right)^{6 \cdot \sqrt{2}} = 2^{\frac{1}{3} \cdot 6 \cdot \sqrt{2}} = 2^{2 \cdot \sqrt{2}} = (2^2)^{\sqrt{2}} = \underline{\underline{4^{\sqrt{2}}}}$$