

$$a) \quad 2^{\frac{3}{5}} \cdot \left(2^{\frac{1}{5}}\right)^2 = 2^{\frac{3}{5}} \cdot 2^{\frac{2}{5}} = 2^{\frac{5}{5}} = 2$$

$$b) \quad 2^{\frac{1}{3}} \cdot \left(2^{\frac{1}{3}}\right)^2 = 2^{\frac{1}{3}} \cdot 2^{\frac{2}{3}} = 2^{\frac{3}{3}} = 2$$

$$d) \quad 2^{\frac{3}{4}} \cdot 2^{\frac{4}{3}} = 2^{\frac{3}{4} + \frac{4}{3}} = 2^{\frac{9+16}{12}} = 2^{\frac{25}{12}} \\ = \sqrt[12]{2^{25}}$$

$$f) \quad 2^{\frac{1}{3}} \cdot 2^{\frac{3}{4}} \cdot 2^{\frac{1}{6}} = 2^{\frac{1}{3} + \frac{3}{4} + \frac{1}{6}} \\ = 2^{\frac{4+9+2}{12}} = 2^{\frac{15}{12}} \\ = \sqrt[12]{2^{15}}$$

$$g) \quad \left(2^{\frac{1}{3}}\right)^{\frac{1}{2}} = 2^{\frac{1}{3} \cdot \frac{1}{2}} = 2^{\frac{1}{6}} = \sqrt[6]{2}$$