

$$1) \left[ \frac{-0,1^2}{(-0,2)^2} \right]^3 = - \frac{-0,1^6}{0,2^6} = \left( \frac{0,1}{0,2} \right)^6 = \boxed{\frac{1}{64}}$$

$$2) (2 \cdot 3^{-2} - 3 \cdot 2^{-3})^{-1} \cdot \left( \frac{3^2}{11} \right)^{-1} = \left( \frac{2}{9} - \frac{3}{8} \right)^{-1} \cdot \frac{11}{9} = \left( \frac{16-27}{72} \right)^{-1} \cdot \frac{11}{9} =$$

$$= \frac{72 \cdot 8}{-11} \cdot \frac{11}{9} = \boxed{-8}$$

$$3) \frac{3}{4} \cdot 10^{-5} \cdot \left( \frac{1}{2} \cdot 10^2 \right)^{-2} = \frac{3}{4 \cdot 10^5} \cdot \left( \frac{10^2}{2} \right)^{-2} = \frac{3}{4 \cdot 10^5} \cdot \frac{2^2}{10^4} = \frac{3}{10^9} = \boxed{3 \cdot 10^{-9}}$$

$$4) \frac{0,4^{-5} \cdot 0,4^{-2}}{0,4^{-6} \cdot 0,4} - \left( \frac{2}{3} \right)^{-3} = \frac{0,4^{-7}}{0,4^{-5}} - \frac{3^3}{2^3} = 0,4^{-2} \cdot \frac{27}{8} = \frac{10^2}{4^2} \cdot \frac{27}{8} =$$

$$= \frac{100 \cdot 27}{16 \cdot 8} = \frac{2700}{128} = \frac{675}{32} = \boxed{\frac{23}{8}}$$

$$5) \sqrt[6]{y \cdot \sqrt{y}} = \sqrt[6]{y \cdot y^{\frac{1}{2}}} = \sqrt[6]{y^{\frac{3}{2}}} = \left( y^{\frac{3}{2}} \right)^{\frac{1}{6}} = \boxed{y^{\frac{1}{4}}}$$

$$6) \sqrt[8]{2^5 \cdot \sqrt[3]{2}} = \sqrt[8]{2^5 \cdot 2^{\frac{1}{3}}} = \sqrt[8]{2^{\frac{16}{3}}} = \left( 2^{\frac{16}{3}} \right)^{\frac{1}{8}} = \boxed{2^{\frac{2}{3}}}$$

$$7) \sqrt[7]{y^3 \cdot \sqrt[4]{y}} = \sqrt[7]{y^3 \cdot y^{\frac{1}{4}}} = \sqrt[7]{y^{\frac{13}{4}}} = \left( y^{\frac{13}{4}} \right)^{\frac{1}{7}} = \boxed{y^{\frac{13}{28}}}$$

$$8) \sqrt[3]{\sqrt[3]{9}} \cdot \sqrt[3]{25^{\frac{1}{2}}} = \sqrt[3]{3} \cdot \sqrt[3]{5} = \boxed{\sqrt[3]{15}}$$

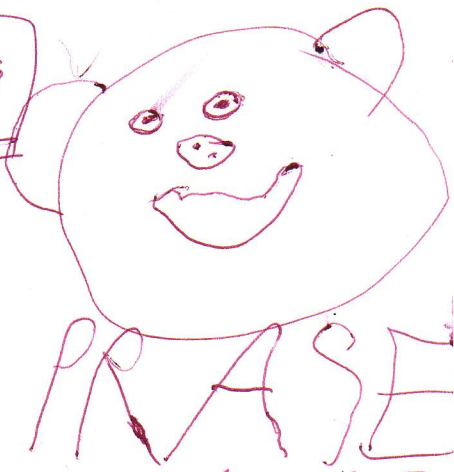
$$9) \sqrt[3]{x^2 \cdot y} \cdot \sqrt[3]{x \cdot y^2} \cdot (x^{-2} \cdot y^{-5})^{-\frac{1}{6}} = x^{\frac{2}{3}} \cdot y^{\frac{1}{3}} \cdot x^{\frac{1}{3}} \cdot y^{\frac{2}{3}} \cdot x^{\frac{2}{6}} \cdot y^{\frac{5}{6}} = x^{\frac{2}{3} + \frac{1}{3} + \frac{1}{3}} \cdot y^{\frac{1}{3} + \frac{2}{3} + \frac{5}{6}} =$$

$$= x^{\frac{4}{3}} \cdot y^{\frac{11}{6}} = \boxed{x^{\frac{4}{3}} \cdot y^{\frac{11}{6}}}$$

$$10) (\sqrt{a} \cdot a^{-\frac{2}{3}} \cdot \sqrt[4]{a})^4 = a^{\frac{4}{2}} \cdot a^{-\frac{8}{3}} \cdot a^{\frac{4}{4}} = a^2 \cdot a^{-\frac{8}{3}} \cdot a = a \cdot a^{\frac{2}{3}} = a^{\frac{3}{3} + \frac{2}{3}} = a^{\frac{5}{3}} = \boxed{\sqrt[3]{a^5}}$$



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$$1) \frac{\left(\frac{-1}{3}\right)^2}{\left(\frac{-1}{2}\right)^3} = \frac{\frac{1}{9}}{-\frac{1}{8}} = \frac{-8}{9}$$

$$2) (6 \cdot 2^{-2} - 3 \cdot 2^{-1}) : \left(\frac{7}{10}\right)^{-2} = \left(\frac{6}{4} - \frac{3}{2}\right) : \left(\frac{10}{7}\right)^2 = \frac{6-6}{4} : \frac{100}{49} = 0 : \frac{100}{49} = 0$$

$$3) \frac{2 \cdot 10^3 \cdot 3 \cdot 10^{-2} \cdot (4 \cdot 10^{-1})^2}{24 \cdot 10^{-1} \cdot (2 \cdot 10^5)^{-1}} = \frac{6 \cdot 10 \cdot 16 \cdot 10^{-2}}{424 \cdot 10^{-1} \cdot 2^{-1} \cdot 10^{-5}} = \frac{4 \cdot 10^{-1} \cdot 2}{10^{-6}} = 8 \cdot 10^5$$

$$4) (0,063 \cdot 10^{-2}) : [0,09 \cdot (10^{-2})^{-1}] = 0,00063 : 9 = 0,00007$$

$$5) \sqrt[3]{a \cdot \sqrt{a^5}} = \sqrt[3]{a \cdot a^{\frac{5}{2}}} = \sqrt[3]{a^{\frac{7}{2}}} = \left(a^{\frac{7}{2}}\right)^{\frac{1}{3}} = a^{\frac{7}{6}}$$

$$6) \sqrt[3]{2 \cdot \sqrt[3]{2}} = \sqrt[3]{2 \cdot 2^{\frac{1}{3}}} = \sqrt[3]{2^{\frac{4}{3}}} = \left(2^{\frac{4}{3}}\right)^{\frac{1}{3}} = 2^{\frac{4}{9}}$$

$$7) \sqrt[7]{x^3 \cdot \sqrt[4]{x}} = \sqrt[7]{x^3 \cdot x^{\frac{1}{4}}} = \sqrt[7]{x^{\frac{13}{4}}} = \left(x^{\frac{13}{4}}\right)^{\frac{1}{7}} = x^{\frac{13}{28}}$$

$$8) \sqrt[3]{\sqrt{4}} \cdot \sqrt[3]{16^{\frac{1}{2}}} = \sqrt[3]{2} \cdot \sqrt[3]{4} = \sqrt[3]{8} = 2$$

$$9) \sqrt[4]{s} \cdot \sqrt[5]{s^5} \cdot (\sqrt{s-1})^3 = s^{\frac{1}{4}} \cdot s^{\frac{5}{5}} \cdot s^{-\frac{3}{2}} = s^{\frac{3+10-18}{20}} = s^{-\frac{5}{12}}$$

$$10) \left(x^{-\frac{2}{3}} \cdot \sqrt[5]{x^3} \cdot x^{\frac{1}{5}}\right)^{\frac{15}{4}} = \left(x^{-\frac{2}{3}} \cdot x^{\frac{3}{5}} \cdot x^{\frac{1}{5}}\right)^{\frac{15}{4}} = \left(x^{-\frac{2}{3} + \frac{3}{5} + \frac{1}{5}}\right)^{\frac{15}{4}} = \left(x^{\frac{-10+9+15}{15}}\right)^{\frac{15}{4}} = \left(x^{\frac{4}{15}}\right)^{\frac{15}{4}} = x$$