

Simplify.

1) $(x^9)^{-\frac{2}{3}}$

2) $(64n^4)^{-\frac{3}{2}}$

3) $(10000r^8)^{\frac{1}{4}}$

4) $(125a^9)^{-\frac{1}{3}}$

5) $(x^4)^{\frac{1}{2}}$

6) $(v^9)^{\frac{5}{3}}$

7) $(32x^5)^{\frac{2}{5}}$

8) $(125v^9)^{\frac{5}{3}}$

9) $(64b^3)^{\frac{2}{3}}$

10) $(216r^3)^{\frac{4}{3}}$

11) $\frac{\sqrt{7}}{9\sqrt{2}}$

12) $\frac{\sqrt{7}}{7\sqrt{3}}$



$$13) \frac{\sqrt{9}}{5\sqrt{8}}$$

$$14) \frac{\sqrt{2}}{3\sqrt{6}}$$

$$15) \frac{9\sqrt{15}}{9\sqrt{18}}$$

$$16) -8\sqrt[5]{64m^{10}n^5}$$

$$17) 6\sqrt[3]{56a^7b^9}$$

$$18) -10\sqrt[3]{108x^8y^5}$$

$$19) 10\sqrt[5]{128m^5n^2}$$

$$20) -10\sqrt[3]{250x^2y^7}$$

$$21) -2\sqrt[4]{648m^4n^5}$$

$$22) -2\sqrt[7]{108a^2b^4}$$

$$23) 9\sqrt[7]{512a^3b}$$

$$24) 7\sqrt[3]{180x^2y^2}$$

$$25) -2\sqrt[4]{729u^9v^3}$$

Answer key

$$1) (x^9)^{-\frac{2}{3}}$$

$$\frac{1}{x^6}$$

$$3) (10000r^8)^{\frac{1}{4}}$$

$$10r^2$$

$$5) (x^4)^{\frac{1}{2}}$$

$$x^2$$

$$7) (32x^5)^{\frac{2}{5}}$$

$$4x^2$$

$$9) (64b^3)^{\frac{2}{3}}$$

$$16b^2$$

$$11) \frac{\sqrt{7}}{9\sqrt{2}}$$

$$\frac{\sqrt{14}}{18}$$

$$2) (64n^4)^{-\frac{3}{2}} \frac{1}{512n^6}$$

$$4) (125a^9)^{-\frac{1}{3}} \frac{1}{5a^3}$$

$$6) (v^9)^{\frac{5}{3}}$$

$$v^{15}$$

$$8) (125v^9)^{\frac{5}{3}}$$

$$3125v^{15}$$

$$10) (216r^3)^{\frac{4}{3}}$$

$$1296r^4$$

$$12) \frac{\sqrt{7}}{7\sqrt{3}} \frac{\sqrt{21}}{21}$$

$$13) \frac{\sqrt{9}}{5\sqrt{8}}$$

$$\frac{3\sqrt{2}}{20}$$

$$14) \frac{\sqrt{2}}{3\sqrt{6}} \frac{\sqrt{3}}{9}$$

$$15) \frac{9\sqrt{15}}{9\sqrt{18}}$$

$$\frac{\sqrt{30}}{6}$$

$$16) -8\sqrt[5]{64m^{10}n^5}$$

$$-16m^2n^5\sqrt{2}$$

$$17) 6\sqrt[3]{56a^7b^9}$$

$$12a^2b^3\sqrt[3]{7a}$$

$$18) -10\sqrt[3]{108x^8y^5}$$

$$-30x^2y^3\sqrt[3]{4x^2y^2}$$

$$19) 10\sqrt[5]{128m^5n^2}$$

$$20m^5\sqrt[5]{4n^2}$$

$$20) -10\sqrt[3]{250x^2y^7}$$

$$-50y^2\sqrt[3]{2x^2y}$$

$$21) -2\sqrt[4]{648m^4n^5}$$

$$-6mn^4\sqrt[4]{8n}$$

$$22) -2\sqrt[7]{108a^2b^4}$$

$$-2\sqrt[7]{108a^2b^4}$$

$$23) 9\sqrt[7]{512a^3b}$$

$$18\sqrt[7]{4a^3b}$$

$$24) 7\sqrt[3]{180x^2y^2}$$

$$7\sqrt[3]{180x^2y^2}$$

$$25) -2\sqrt[4]{729u^9v^3}$$

$$-6u^2\sqrt[4]{9uv^3}$$