

Simplifying Radicals Practice Problems

Simplify:

1. $\sqrt{t^{12}}$

2. $-9\sqrt{\frac{125}{81}}$

3. $4\sqrt{36m^{14}}$

4. $-12xy\sqrt{40x^4y^6}$

5. $4p\sqrt{360p^{10}}$

6. $\sqrt{\frac{q^{18}}{25}}$

7. $4g^2h\sqrt{36g^4h^8}$

8. $-3de\sqrt{d^4e^{13}}$

9. $6m^3n^4\sqrt{12m^6n^{10}}$

10. $5\sqrt{360x^{14}y^{17}}$

11. $\sqrt[3]{-243}$

12. $\sqrt[4]{-81}$

13. $\sqrt[5]{243x^{25}}$

14. $\sqrt[6]{32x^{12}y^{18}z^{21}}$

15. $4xy^3\sqrt[4]{162x^4y^8z^{12}}$

16. $-3m^4n\sqrt[5]{128m^4n^8}$

Answers

Simplify:

1. $\sqrt{t^{12}}$

t^6

2. $-9\sqrt{\frac{125}{81}}$

$-5\sqrt{5}$

3. $4\sqrt{36m^{14}}$

$24|m^7|$

4. $-12xy\sqrt{40x^4y^6}$

$-24x^3y|y^3|\sqrt{10}$

5. $4p\sqrt{360p^{10}}$

$24p|p^5|\sqrt{10}$

6. $\sqrt{\frac{q^{18}}{25}}$

$\frac{|q^9|}{5}$

7. $4g^2h\sqrt{36g^4h^8}$

$24g^6h^5$

8. $-3de\sqrt{d^4e^{13}}$

$-3d^3e^7\sqrt{e}$

9. $6m^3n^4\sqrt{12m^6n^{10}}$

$12m^3|m^3n^5|\sqrt{3}$

10. $5\sqrt{360x^{14}y^{17}}$

$30|x^7|y^8\sqrt{10y}$

11. $\sqrt[3]{-243}$

$-3\sqrt[3]{9}$

12. $\sqrt[4]{-81}$

Not a real number

13. $\sqrt[5]{243x^{25}}$

$3x^5$

14. $\sqrt[6]{32x^{12}y^{18}z^{21}}$

$x^2|y^3|z^3\sqrt[6]{32z^3}$

15. $4xy^3\sqrt[4]{162x^4y^8z^{12}}$

$12x|xz^3|y^5\sqrt[4]{3}$

16. $-3m^4n\sqrt[5]{128m^4n^8}$

$-6m^4n^2\sqrt[5]{4m^4n^3}$

17. $\sqrt[4]{\frac{16m^3}{n^2}}$

$\frac{2\sqrt[4]{m^3n^2}}{n}$

18. $\frac{2x}{\sqrt[5]{8x}}$

$\frac{5\sqrt[5]{4x^4}}{3}$

19. $\sqrt[3]{\frac{y^2}{3}}$

$\frac{\sqrt[3]{9y^2}}{3}$