

Simplify. Write without negative exponents.

1. $(2x^3y^2)^3$

2. $\frac{-6x^2y^4z}{2xy^5z^{-4}}$

3. $\left(\frac{3x^2y^4}{2z}\right)^3$

4. $(3X^{-3})^{-2}$

Simplify.

5. $\sqrt[3]{54}$

6. $\sqrt{6} \cdot \sqrt{2}$

7. $\frac{\sqrt[3]{56}}{\sqrt[3]{7}}$

8. $2\sqrt{12} + 3\sqrt{48} - 2\sqrt{75}$

9. $(3 + 2\sqrt{3})(2 - 4\sqrt{3})$

10. $\frac{2 + \sqrt{3}}{4 - \sqrt{3}}$

Write in radical form:

11. $3x^{\frac{3}{4}} \cdot x^{\frac{-1}{4}}$

12. $y^{\frac{2}{3}} z^{\frac{1}{3}}$

Write with positive rational (fractional) exponents.

13. $\sqrt[3]{x^5}$

14. $\frac{x^{\frac{1}{2}}y^2}{x^2y^{\frac{3}{2}}}$

Simplify:

15. $4(-3i) - 6(4+2i)$

16. $(5-2i)^2$

17. $\frac{2+5i}{1-3i}$

18. i^{45}

19. $i^{34} + i^{17}$

20. $i^{32} - i^{24}$

21. $(5^{x+7})(5^{3x-4})$