Advanced Power Rules

Mana Maths

Te reo Māori terms

taupū
exponent
Open in Te Aka

pūtake
base
Open in Te Aka

pūtakerua
square root
Open in Te Aka

pūtaketoru
cube root
Open in Te Aka

Advanced Power Rules — Foundation

1. Write 2^{-1} as a fraction.

2. Write 10^{-3} as a decimal.

3. Evaluate 5^{-1}.

4. Evaluate 4^{-2}.

5. Complete: $3^{-1} = \frac{1}{\square}$.

6. Complete: $7^{-2} = \frac{1}{7^{\square}}$.

7. Write $16^{\frac{1}{2}}$ as a number.

8. Write $27^{\frac{1}{3}}$ as a number.

9. Evaluate $81^{\frac{1}{2}}$.

10. Evaluate $64^{\frac{1}{3}}$.

11. Complete: $a^{-3} = \frac{1}{a^{\square}}$.

12. Complete: $x^{\frac{1}{2}} = \sqrt{x}$.

13. Write $x^{\frac{1}{3}}$ with a root sign.

14. Is 9^{-1} greater than or less than 1?

Advanced Power Rules — Proficient

1. Evaluate 2^{-3}.

2. Evaluate $10^{-2} \times 10^{5}$.

3. Simplify $a^{4} \times a^{-2}$.

4. Simplify $b^{6} \div b^{2}$.

5. Simplify $c^{5} \div c^{7}$.

6. Write $32^{\frac{1}{5}}$ as a number.

7. Write $81^{\frac{3}{4}}$ as a number.

8. Write x^{-2} with a positive index.

9. Write $y^{\frac{1}{2}}$ in surd form.

10. Simplify $(m^{3})^{2}$.

11. Simplify $(p^{4})^{\frac{1}{2}}$.

12. Complete: $q^{\frac{2}{3}} = (\sqrt[3]{q})^{\square}$.

Advanced Power Rules — Excellence

1. Simplify $x^{-3}y^{2} \times x^{5}$.

2. Simplify $\dfrac{a^{7}}{a^{-2}}$.

3. Simplify $\dfrac{m^{3}n^{-1}}{m^{-2}n^{4}}$ with positive indices.

4. Evaluate $16^{-\frac{1}{2}}$.

5. Evaluate $27^{-\frac{2}{3}}$.

6. Simplify $(p^{-2})^{3}$ with positive indices.

7. Simplify $(q^{8})^{\frac{3}{4}}$.

8. Write $r^{-\frac{1}{2}}$ with a root and positive index.

9. Write $s^{\frac{3}{2}}$ with a root sign.

10. Which is greater: 2^{-3} or 2^{-4}? Explain.

11. True or false: $x^{-2} = -x^{2}$. Give a reason.

12. Complete: $t^{-\frac{2}{3}} = \dfrac{1}{\sqrt[3]{t^{\square}}}$.

13. Simplify $\dfrac{9x^{-1}}{3x^2}$ with positive indices.

14. Simplify $4y^{\frac{1}{2}} \times y^{\frac{3}{2}}$.

15. If $u^3 = 8$, find u^{-1}.

16. Solve $v^{\frac{1}{2}} = 5$.