# Laws Of Indices: Questions

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**Summary**

Supplementary questions for the study guide on Laws Of Indices.

*Before attempting these questions, it is highly recommended that you read Guide: Laws Of Indices.*

## Q1

Find the following:

1.1. $(3)^4$

1.2. $125^{\frac{2}{3}}$

1.3. $32^{\frac{2}{5}}$

1.4. $729^{\frac{-2}{3}}$

1.5. $4^3 \cdot 2^5$

1.6. $\frac{9^2}{27^2}$

1.7. $(5^2)^2$

1.8. $(35^0)^9$

1.9. $(35^9)^0$

1.10. $(729^9)^{\frac{1}{9}}$

1.11. $7^{-3}$

1.12. $64^{\frac{4}{3}}$

## Q2

Simplify the following expressions:

2.1. $(b^7)^4$

2.2. $y^{13} \cdot y^5$

2.3. $\frac{x^{13}}{x^5}$

2.4. $(3y^{-2})^5$

2.5. $(7z^{-5})^3$

2.6. $(\frac{8x^5}{4x^{-5}})$

2.7. $((2x)^3 \cdot x^5)$

2.8. $(\frac{2a^{-4}}{(3a)^{-2}})$

2.9. $\frac{(2y)^3}{2y^5}$

2.10. $(\frac{2}{a})^4 \cdot (\frac{a}{12})^3$

2.11. $\frac{25t^{-4}}{60t^5}$

## Q3

Solve for x:

3.1. $\sqrt[4]{x-4} = 5$

3.2. $x^4 = 2^8$

3.3. $x^{0.5} = 23$

3.4. $8^{2-x} = 2^{4+3x}$

3.5. $2^{3x} = 10$

3.6. $5^{3-x} = 625$

3.7. $7^{2-x} = 4^{2x+3}$

3.8. $16 = 8^{3-7x}$

3.9. $e^{3-8x} - 9 = 0$

3.10. $e^{4-3x} + 8 = 12$

3.11. $\sqrt[3]{2^{4x} - 4} = 5$

3.12. $\sqrt[3]{e^{2x} - 13} = 81^{\frac{1}{4}}$

3.13. $\frac{5xa^{-7}b^9}{9a^2b^{-10}} = \frac{25b^{19}}{3a^9}$

Please click this link to find the answers.

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