

Y13 negative and fractional powers #3

Write without using negatives or fractional exponents:

1. $x^{\frac{1}{5}}$

2. $x^{\frac{-1}{3}}$

3. $x^{\frac{4}{3}}$

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

Write in the form ax^n where a and n can be fractional and/or negative:

5. $\sqrt[3]{64x^2}$

6. $\frac{1}{2\sqrt{x}}$

7. $4(\sqrt[3]{x})^2$

8. $\frac{3}{\sqrt[4]{x}}$

Simplify and write in the form x^n :

9. $\sqrt{x^7}$

10. $\frac{1}{(\sqrt[4]{x})x^2}$

11. $\sqrt[2]{x} \times \sqrt[3]{x}$

12. $\frac{\sqrt[3]{x}}{x^2}$

Of the four terms which, if any, is different from the others?

13. $\frac{\frac{1}{x}}{\frac{1}{x^3}}$ $\sqrt[2]{x^4}$ $(\sqrt{x})^4$ $\frac{x^{2.5}}{\sqrt{x}}$

14. $\sqrt[8]{x}$ $\frac{\sqrt[4]{x}}{2}$ $\sqrt{\sqrt[4]{x}}$ $x^{0.125}$

15. $\frac{1}{\sqrt[3]{x}}$ $\frac{\sqrt[3]{x}}{\sqrt[3]{x^2}}$ $x^{-0.3}$ $(\sqrt[6]{x})^{-2}$

16. $x^2\sqrt{x^3}$ $\frac{\sqrt{x}}{\frac{1}{x^3}}$ $\frac{x^3}{\sqrt{x}}$ $(\sqrt{x})^7$

Answers: Y13 negative and fractional powers #3

Write without using negatives or fractional exponents:

- $x^{\frac{1}{5}} = \sqrt[5]{x}$
- $x^{-\frac{1}{3}} = \frac{1}{\sqrt[3]{x}}$
- $x^{\frac{4}{3}} = \sqrt[3]{x^4}$ or, less usually, $(\sqrt[3]{x})^4$
- $(3x)^{-2} = \frac{1}{9x^2}$

Write in the form ax^n where a and n can be fractional and/or negative:

- $\sqrt[3]{64x^2} = 4x^{\frac{2}{3}}$
- $\frac{1}{2\sqrt{x}} = 0.5x^{-0.5}$ or $\frac{1}{2}x^{-\frac{1}{2}}$ etc
- $4(\sqrt[3]{x})^2 = 4x^{\frac{2}{3}}$
- $\frac{3}{\sqrt[4]{x}} = 3x^{-\frac{1}{4}}$ or $3x^{-0.25}$

Simplify and write in the form x^n :

- $\sqrt{x^7} = x^{\frac{7}{2}}$ or $x^{3.5}$
- $\frac{1}{(\sqrt[4]{x})x^2} = x^{-\frac{9}{4}}$ or $x^{-2.25}$
- $\sqrt[2]{x} \times \sqrt[3]{x} = x^{\frac{5}{6}}$
- $\frac{\sqrt[3]{x}}{x^2} = x^{-\frac{5}{3}}$

Of the four terms which, if any, is different from the others?

- $\frac{\frac{1}{x}}{\frac{1}{x^3}}$ $\sqrt[2]{x^4}$ $(\sqrt{x})^4$ $\frac{x^{2.5}}{\sqrt{x}}$ are all the same = x^2
- $\sqrt[8]{x}$ $\sqrt[4]{\sqrt{x}}$ $x^{0.125}$ are the same but $\frac{\sqrt[4]{x}}{2} = 0.5x^{0.25}$ is different
- $\frac{1}{\sqrt[3]{x}}$ $\frac{\sqrt[3]{x}}{\sqrt[3]{x^2}}$ $(\sqrt[6]{x})^{-2}$ are the same = $x^{-\frac{1}{3}}$ but $x^{-0.3}$ is different
- $x^2\sqrt{x^3}$ $\frac{\sqrt{x}}{\frac{1}{x^3}}$ $(\sqrt{x})^7$ are the same = $x^{3.5}$ but $\frac{x^3}{\sqrt{x}} = x^{2.5}$ is different