Rheolau Indecsau

Rules of Indices

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Rules of Indices

- $n^a \times n^b = n^{a+b}$
- $n^a \div n^b = n^{a-b} = \frac{n^a}{n^b}$
- $n^0 = 1$
- $(n^a)^b = n^{ab}$
- $(nm)^a = n^a m^a$
- $\left(\frac{n}{m}\right)^a = \frac{n^a}{m^a}$
- $n^{-a} = \frac{1}{n^a}$
- $\left(\sqrt[b]{n}\right)^a = n^{\frac{a}{b}} = \sqrt[b]{n^a}$

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Ymarfer 1 / *Exercise 1*

Symleiddiwch y canlynol. / *Simplify the following.*

(a) $x^4 \times x^3$

(b) $\frac{y^{12}}{y^2}$

(c) z^0

(ch) $25^{\frac{1}{2}}$

(d) 3^{-2}

(dd) $16^{\frac{3}{4}}$

(e) $(x^2y)^4$

(f) $27^{-\frac{2}{3}}$

(ff) $\frac{x^4 \times x^{-2}}{x^{-8}}$

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Ymarfer 1 / *Exercise 1*

Symleiddiwch y canlynol. / *Simplify the following.*

(a) $x^4 \times x^3 = x^7$

(b) $\frac{y^{12}}{y^2} = y^{10}$

(c) $z^0 = 1$

(ch) $25^{\frac{1}{2}} = \sqrt{25} = 5$

(d) $3^{-2} = \frac{1}{3^2} = \frac{1}{9}$

(dd) $16^{\frac{3}{4}} = \left(\sqrt[4]{16}\right)^3 = 2^3 = 8$

(e) $(x^2y)^4 = x^8y^4$

(f) $27^{-\frac{2}{3}} = \frac{1}{27^{\frac{2}{3}}} = \frac{1}{\left(\sqrt[3]{27}\right)^2} = \frac{1}{3^2} = \frac{1}{9}$

(ff) $\frac{x^4 \times x^{-2}}{x^{-8}} = \frac{x^2}{x^{-8}} = x^{10}$