L2 Simplifying Exponents Practice #1

Simplify – that is remove brackets and combine all possible terms

1. $(x^2)^6$

2. $(4y^3)^2$

3. $\sqrt{25x^6}$

4. $\sqrt[3]{64x^6}$

5. $\left(\frac{3}{x^2}\right)^3$

6. $\left(\frac{7}{x^2}\right)^{-1}$

7. $5x^3 \times 3x^{-2}$

8. $\frac{x}{5x^{-2}}$

9. $\left(\frac{7}{x^2}\right)^{-2}$

10. $\left(\frac{7}{x^{-2}}\right)^{-1}$

11. $\sqrt{81x^{-4}}$

12. $\left(\frac{49\,x^4}{x^{-2}}\right)^{0.5}$

13. $(2x)^3 \times (4x)^{-2}$

14. $\left(\frac{5x}{x^{-2}}\right)^2$

15. $y^3(5xy^{-1})^2$

16. $(10y^{-1})^{-2}$

Answers: L2 Simplifying Exponents Practice #1

Simplify – that is remove brackets and combine all possible terms

1. $(x^2)^6$ $= x^{2\times 6}$ $= x^{12}$

2. $(4y^3)^2$ $= 4^2(y^3)^2$ $= 16y^6$

3. $\sqrt{25x^6}$ $= \sqrt{25}\,\sqrt{x^6}$ $= 5x^3$

4. $\sqrt[3]{64x^6}$ $= \sqrt[3]{64}\,\sqrt[3]{x^6}$ $= 4x^2$

5. $\left(\frac{3}{x^2}\right)^3$ $= \frac{3^3}{(x^2)^3}$ $= \frac{27}{x^6}$

6. $\left(\frac{7}{x^2}\right)^{-1}$ $= \frac{x^2}{7}$

7. $5x^3 \times 3x^{-2}$ $= 15x^{3-2}$ $= 15x$

8. $\frac{x}{5x^{-2}}$ $= \frac{x\times x^2}{5}$ $= \frac{x^3}{5}$

9. $\left(\frac{7}{x^2}\right)^{-2}$ $= \left(\frac{x^2}{7}\right)^2$ $= \frac{x^4}{49}$

10. $\left(\frac{7}{x^{-2}}\right)^{-1}$ $= (7x^2)^{-1}$ $= \frac{1}{7x^2}$

11. $\sqrt{81x^{-4}}$ $= \frac{\sqrt{81}}{\sqrt{x^4}}$ $= \frac{9}{x^2}$ or $= 9x^{-2}$ if you prefer

12. $\left(\frac{49\,x^4}{x^{-2}}\right)^{0.5}$ $= \sqrt{49x^6}$ $= 7x^3$

13. $(2x)^3 \times (4x)^{-2}$ $= \frac{2^3x^3}{4^2x^2}$ $= \frac{8x^3}{16x^2}$ $= \frac{x}{2}$ or $= ½\ x$

14. $\left(\frac{5x}{x^{-2}}\right)^2$ $= (5x^3)^2$ $= 25x^6$

15. $y^3(5xy^{-1})^2$ $= y^3 \times 5^2x^2y^{-2}$ $= 25x^2y$

16. $(10y^{-1})^{-2}$ $= \left(\frac{10}{y}\right)^{-2}$ $= \left(\frac{y}{10}\right)^2$ $= \frac{y^2}{100}$ or $= 0.01y^2$