Properties of Exponents Worksheet

Simplify each expression using the properties of exponents.

1. $2^3 \cdot 2^5$

2. $\frac{5^7}{5^2}$

3. $3^4 \cdot 3^{-2}$

4. $(4^2)^3$

5. $x^6 \cdot x^9$

6. $\frac{a^{10} \cdot a^3}{a^5}$

7. $(2^4)^{-2}$

8. $y^{-5} \cdot y^8$

9. $b^0 \cdot b^6$

10. $\frac{c^2 \cdot c^{-4}}{c^1}$

Answer Key

1. $2^3 \cdot 2^5 = 2^{3 + 5} = 2^8$

2. $\frac{5^7}{5^2} = 5^{7 - 2} = 5^5$

3. $3^4 \cdot 3^{-2} = 3^{4 - 2} = 3^2$

4. $(4^2)^3 = 4^{2 \cdot 3} = 4^6$

5. $x^6 \cdot x^9 = x^{6 + 9} = x^{15}$

6. $\frac{a^{10} \cdot a^3}{a^5} = a^{10 + 3 - 5} = a^8$

7. $(2^4)^{-2} = 2^{4 \cdot -2} = 2^{-8}$

8. $y^{-5} \cdot y^8 = y^{-5 + 8} = y^3$

9. $b^0 \cdot b^6 = b^{0 + 6} = b^6$

10. $\frac{c^2 \cdot c^{-4}}{c^1} = c^{2 - 4 - 1} = c^{-3}$

Make sure to simplify any negative exponents and combine like terms in the answers.