

Rules for Exponents Worksheet Answers

$$1. \quad (2a)(-3ab^2) = (2 \cdot (-3)) \cdot (a \cdot a) \cdot b^2 = -6a^2b^2$$

$$2. \quad -(10x^2y^3z)(3xy^4z^6) = -(10 \cdot 3) \cdot (x^2 \cdot x) \cdot (y^3 \cdot y^4) \cdot (z \cdot z^6) = -30x^3y^7z^7$$

$$3. \quad (5m^{-2}n^3)(-mn^5)(-9m^4n^{-2}) = (5 \cdot -1 \cdot -9) \cdot (m^{-2} \cdot m \cdot m^4) \cdot (n^3 \cdot n^5 \cdot n^{-2}) = 45m^3n^6$$

$$4. \quad a^{m+5} \cdot a^{3m-8} \cdot b^{-3n-1} \cdot b^{6n+4} = a^{(m+5)+(3m-8)} \cdot b^{(-3n-1)+(6n+4)} = a^{4m-3}b^{3n+3}$$

$$5. \quad x^{2a-9} \cdot y^{3b} \cdot x^{a+4} \cdot y^{-4b+2} = x^{(2a-9)+(a+4)} \cdot y^{(3b)+(-4b+2)} = x^{3a-5}y^{-b+2}$$

$$6. \quad (4xy^2)^3 = 4^{1 \cdot 3} x^{1 \cdot 3} y^{2 \cdot 3} = 4^3 x^3 y^6$$

$$7. \quad (-5a^2bc^5)^2 = (-5)^{1 \cdot 2} a^{2 \cdot 2} b^{1 \cdot 2} c^{5 \cdot 2} = (-5)^2 a^4 b^2 c^{10}$$

$$8. \quad \left[3(3m^2n^3)^2\right]^3 = \left[3(3^{1 \cdot 2} m^{2 \cdot 2} n^{3 \cdot 2})\right]^3 = \left[3(3^2 m^4 n^6)\right]^3 \\ = \left[3 \cdot 3^2 m^4 n^6\right]^3 = (3^3 m^4 n^6)^3 = 3^{3 \cdot 3} m^{4 \cdot 3} n^{6 \cdot 3} = 3^9 m^{12} n^{18}$$