Exponent Rules (More Practice)

Name:_____

1. Apply the first exponent rule to simplify: $\boxed{b^m \cdot b^n = b^{m+n}}$

(A) $x^2 \cdot x^3$

(B) $3^x \cdot 3^x$

(C) $3^{100} \cdot 3^{-98}$

2. Apply the extended first exponent rule to simplify: $\boxed{\dfrac{b^m}{b^n} = b^{m-n}}$

(A) $\dfrac{x^5}{x^3}$

(B) $\dfrac{2^x}{2^3}$

(C) $\dfrac{3^{100}}{3^{102}}$

3. Apply the second exponent rule to simplify: $\boxed{\left(b^m\right)^n = b^{mn}}$

(A) $\left(x^2\right)^3$

(B) $\left(3^x\right)^x$

(C) $\left(\dfrac{1}{2^x}\right)^{-2}$

4. Apply the extended second exponent rule to simplify: $\boxed{b^{m/n} = \left(\sqrt[n]{b}\right)^m = \sqrt[n]{b^m}}$

(A) $9^{3/2}$

(B) $27^{-2/3}$

(C) $\sqrt[4]{x^8}$

5. Apply the third exponent rule to simplify: $\boxed{(ab)^n = a^n\, b^n}$

(A) $(2x)^3$

(B) $\left(-3x^3\right)^2$

(C) $\left(\dfrac{3^{2x}}{2^x}\right)^{-2}$