** The City School**

 North Nazimabad Boys Campus

 Subject: Mathematics

 Reinforcement worksheet

Topic: Application of laws of Indices

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class:** 8  **Sec: \_\_\_**  **Subject:** Mathematics  **Date: \_\_\_\_\_\_\_\_\_**

**Q1: Simplify each of the following;**

1. $(8a^{3} ÷ 4a)^{4}$
2. $(2 a^{2} b^{3})^{4} ÷4 a^{5} b^{2}$
3. $(2 a^{2})^{3} × (4a^{3})^{2}$
4. $7a^{-4} × 2a^{-1}$
5. $8a^{-4} ÷ 2a^{-6}$
6. $3x^{4} × 9x^{2} y ÷ (3xy)^{2}$
7. $2a^{4} b ×3ab^{3} ÷6(ab)^{4}$
8. $a^{ x+4} b^{5} ÷\frac{a^{x+7}}{(ab)^{-5}}$

**Q2: Evaluate each of the following;**

1. $(\frac{2}{3})^{-2}$
2. $(\frac{2}{3})^{-1} × (3\frac{3}{8})^{-2}$
3. $(\frac{3}{4})^{-2}+(\frac{1}{3})^{2}$
4. $45^{2} × 7^{2} ÷ (\frac{1}{2})^{-1}$
5. $\left(\frac{3}{5}\right) × (\frac{7}{9})^{0}$ ÷ $(\frac{1}{2})^{-4}$
6. $2^{-2} ÷ 3^{-1}- (1\frac{3}{5})^{-1}$

**Q3: Simplify the following, giving your answer with positive indices;**

1. $(2x^{-3})^{2} ÷ (8x^{6})^{\frac{1}{3}}$
2. $ (a^{3} b)^{\frac{1}{2} } ÷(2 a^{4} b^{- \frac{1}{2}})^{- 2} $
3. $\frac{5 x^{3} y^{4}}{4 x y^{3}} × \frac{(25 x^{4} y)^{-1}}{\left(2xy\right)^{-2}}$
4. $\frac{(a b^{2})^{-10} (2 a b^{-4})^{-2}}{(4 a b c)^{3} (8 a c^{3} )^{-1}}$

**Q4: Solve the following equations;**

1. $2^{x} =256$
2. $7^{x} =49$
3. $5^{x+7} = 25^{x}$
4. $100= 1000^{x}$