Student No.:	Date: / /	Score: /28
Student Name:		

Revision of Laws of Indices and Numeral Systems (I)

Exercises

1. Find the values of the following expressions without a calculator. *(Give the answers in fraction form if necessary.)*

(a) $2^{-4} \times 2^{7}$

(b) $7^{6} \times 7^{-4} - 3^{0}$

(c) $(4^{-1})^{-3}$

(d) $\dfrac{2^{-1}+3^{-1}}{(2+3)^{2}}$

2. If $a = 3$ and $n = -1$, simplify $a^{-n} \cdot 9^{-4n+x} \div \dfrac{1}{81} \cdot a^{2x}$.

3. Given that $5p^{x-2y}q^{x+6y}$ and $\dfrac{1}{2}p^{2x+y}q^{-2x-3}$ are like terms, find the values of x and y.

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4. Simplify the following expressions and express your answer with positive indices.

(a) $(-4a^{-2})^3$

(b) $(2a^5b^3)^2$

(c) $\left(\frac{3x^4}{4y^5}\right)^3$

5. Express the following in scientific notation.

(a) 800 000 000

(b) 2835×10^9

(c) 0.000 893

6. Express the following numbers in the expanded form.

(a) 24063_{10}

(b) $7E0C_{16}$

(c) 10011_2

7. Convert the following numbers into denary numbers.

(a) 100101_2

(b) 2112_{16}

(c) 101110_2

(d) $23ED_{16}$

8. Convert the following denary numbers into hexadecimal numbers.

(a) 35

(b) 512

(c) 2354

(d) 110012

9. Given that the diameter of the Sun is 1400000 km and the diameter of the Earth is 1.28×10^4 km. How many times of the diameter of the Earth is the diameter of the Sun? *(Give the answer in scientific notation and correct to 3 significant figures.)*

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M.C.

1. Simplify $\dfrac{a^{2x}b^{2y}}{a^{-2y}b^{-2x}}$.

A. 1

B. $(ab)^{x+y}$

C. $a^{2(x-y)}b^{2(y-x)}$

D. $(ab)^{2(x+y)}$

2. Convert $A03_{16}$ into denary number.

A. 163_{10}

B. 778_{10}

C. 2563_{10}

D. 2608_{10}

3. Express the value of $3.903\times10^{-4}-4.03\times10^{-3}$ in scientific notation.

A. 3.6397×10^{-3}

B. -3.6397×10^{-3}

C. -1.27×10^{-5}

D. -1.27×10^{-4}

4. If $2^{x+3}+2^{x}=\dfrac{9}{16}$, find the value of x.

A. -4

B. -2

C. -3

D. 4