Worksheet 2015-8ƐC-00004(1)

NO CALCULATORS MAY BE USED!

(1) (1) Simplify by using exponential laws:

(a) $k^3 \times k^{-1} \times k^0 \times k^1$

$= k^{3-1+0+1}$

$= k^3$

(b) $(2x^3y)^2$

$= 2^2 x^6 y^2$

$= 4x^6 y^2$

(c) $\frac{p^2q^3}{p^4q^3}$

$= p^{2-4} \times q^{3-3}$

$= p^{-2} \times q^0$

$= \frac{1}{p^2}$

(d) $\sqrt{81x^8}$

$= \sqrt{81} \times \sqrt[2]{x^8}$

$= 9x^{\frac{8}{2}} = 9x^4$

(e) $m^4 \times m^2 \times n \div n^2 \div m^3 \div n^3$

$= m^4 \times m^2 \div m^3 \times n^1 \div n^2 \div n^3$

$= m^{4+2-3} \times n^{1-2-3}$

$= m^3 \times n^{-4}$

$= \frac{m^3}{n^4}$

(2) Find the product of 5^{12} and 25^3.

Product $= 5^{12} \times 25^3$

$= 5^{12} \times (5^2)^3$

$= 5^{12} \times 5^6$

$= 5^{12+6}$

$= 5^{18}$

(3) Write the following in scientific notation:

(a) 800

$= 8 \times 10^2$

(b) 17 897

$= 1,7897 \times 10^4$

(c) 4 million

$= 4\,000\,000$

$= 4,0 \times 10^6$

(4) Write the following as a number:

(a) $7,3 \times 10^1$

$= 7,3 \times 10$

$= 73$

(b) $1,0 \times 10^{10}$

$= 1 \times 10^{10}$

$= 10\,000\,000\,000$

(c) $5,00002 \times 10^3$

$= 5,00002 \times 1000$

$= 5\,000,02$