Matrix 1 Test: Extended Name:_____

1. Types of Number.

$\{ 3.14159,\ 0,\ \pi^2,\ 0.\dot{4}\dot{5},\ \sqrt{-2},\ \frac{2}{7},\ \sqrt{20.25},\ 3^3,\ \sqrt{5.9} \}$

From the above set of numbers, list;

(a) the integers _____

(b) the rational numbers _____

(c) the irrational numbers _____ (d) the imaginary number ____

2. Factors, Multiples and Primes.

(a) List the factors of 180 and identify the prime factors:

{ _____ }

(b) Write 180 as a product of its primes using index notation;

_____ = 180

(c) What is the lowest common multiple of the numbers: 1, 2, 3, 4, 5 and 6?

_____

3. NEGATIVE INDICES :

Simplify the following leaving your final answers with positive indices only.

(a) $b^{-3} \times b^{-6}$ = _____

(b) $5\,d^{-2} \times 8\,d^{-4}$ = _____

(c) $4\,v^{-5} \times 7\,v^{2}$ = _____

(d) $w^{-6}\,z^{3} \times 5w\,z^{4}$ = _____

(e) $e^{9} \div e^{3}$ = _____

(f) $m^{4} \div m^{10}$ = _____

(g) $6\,p^{3} \div p^{-8}$ = _____

(h) $32a^{-5}\,b^{3}\,c^{-4} \div 8\,a^{2}\,b^{-7}c^{4}$ = _____

(i) $(3\,a^{4})^{-3}$ = _____

(j) $(p^{5}\,q\,r^{-4})^{-5}$ = _____

4. FRACTIONAL INDICES:

Simplify the following;

(a) $a^{\frac{1}{4}} \times a^{\frac{2}{3}}$ = _____

(b) $e^{\frac{7}{12}} \times e^{\frac{-1}{12}}$ = _____

(c) $h^{\frac{4}{9}} \div h^{\frac{7}{9}}$ = _____

(d) $b^{\frac{5}{8}} \div b^{\frac{3}{7}}$ = _____

(e) $\sqrt[5]{n^{\frac{10}{11}}}$ = _____

5. STANDARD FORM;

(a) Write 0.00000000525 in standard form _____

(b) Write out 7.2×10^{-8} in full _____