The City School

MATHEMATICS WORKSHEET NO. 1

Class: 7 __ Name: _____ Date: _____

Topic: Factors and Multiples

Find the least value of k when nk is a perfect square or a cube, where n is an integer.

1- Expressed as the product of prime factors,

$198 = 2 \times 3^2 \times 11$ and $18 = 2 \times 3^2$.

Use these results to find

a- The smallest integer, k, such that 198 k is a **perfect square**.

b- The smallest integer, k, such that 18 k is a **perfect cube**.

2- Expressed as the product of prime factors,

$168 = 3 \times 2^3 \times 7$

a- Express **108** as a product of prime factors and write your answer in index notation.

b- Use these results to find

i- the smallest integer, n, such that 108 $\boldsymbol{n}$ is a **perfect cube**.

ii- the smallest integer, n, such that 168 $\boldsymbol{n}$ is a **perfect square**.

3- Expressed as the product of prime factors,

480 = $3 \times 2^5 \times 5$ and 576 =$2^6 \times 3^2$.

Use these results to find

a-The smallest integer, p, such that 576 $\boldsymbol{p}$ is a **perfect cube**

b- The smallest integer, p, such that 480 $\boldsymbol{p}$ is a **perfect square**

4- a- Express 99 as the product of its prime factors.

b- Find the smallest possible integer value of n for which $99n$ is a **perfect square**.

5- a- Express 60 as a product of prime factors and write your answer in index notation.

b- Find the smallest possible integer m such that 60 $\boldsymbol{m}$ is a square number.