



# 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,

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

Use these results to find

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

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

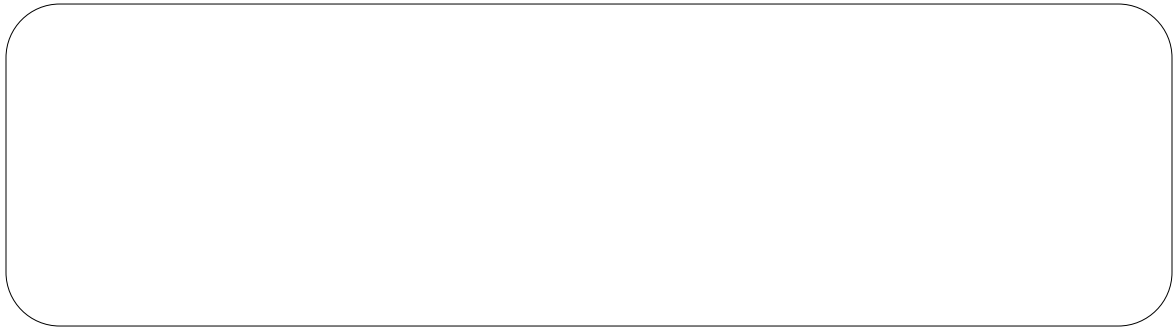
2- Expressed as the product of prime factors,

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

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  $108n$  is a **perfect cube**.



ii- the smallest integer,  $n$ , such that  $168n$  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  $576p$  is a **perfect cube**



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



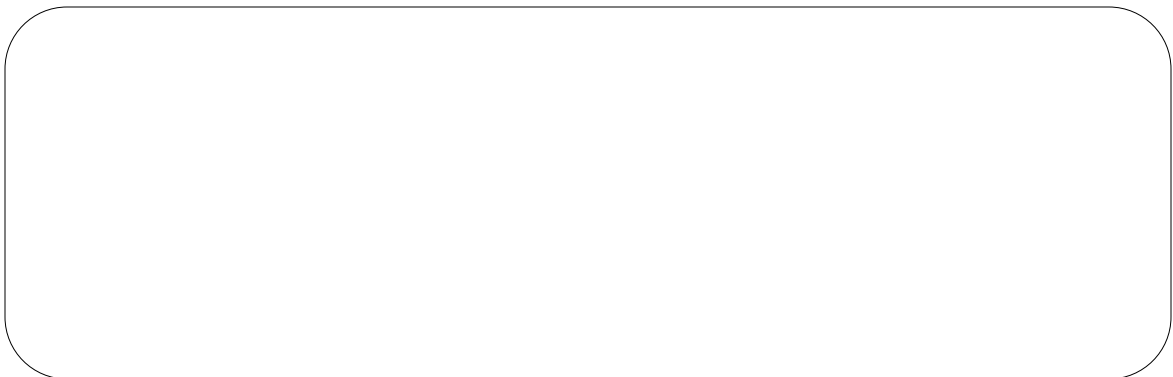
4- a- Express 99 as the product of its prime factors.



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  $60m$  is a square number.

