REAL NUMBERS

SOLUTION 24

A mason has to fit a bathroom with square marble tiles of the largest possible size. The size of the bathroom is 10 ft. by 8 ft. What would be the size in inches of the tile required that has to be cut and how many such tiles are required?

Solution:

1 ft. = 12 inches

$10\ ft. = 10 \times 12 = 120$ inches

$8\ ft. = 8 \times 12 = 96$ inches

The largest possible size of the tile is the HCF of 120 and 96.

By Euclid's Division Algorithm

$$120 = 96 \times 1 + 24$$

$$96 = 24 \times 4 + 0$$

HCF = 24

∴ Size of the tile = 24 inches

Number of tiles = $\frac{Area\ of\ bathroom}{Area\ of\ tile} = \frac{120 \times 96}{24 \times 24} = 5 \times 4 = 20$