

If the HCF of 408 and 1032 is expressible in the form $1032m - 408 \times 5$, find m .

Solution:

By Euclid's division algorithm

$$1032 = 408 \times 2 + 216$$

$$408 = 216 \times 1 + 192$$

$$216 = 192 \times 1 + 24$$

$$192 = 24 \times 8 + 0$$

$$\text{HCF} = 24$$

$$\text{HCF} = 1032m - 408 \times 5$$

$$24 = 1032m - 2040$$

$$24 + 2040 = 1032m$$

$$1032m = 2064$$

$$m = 2$$