GCSE HIGHER · REVISION MAT 4

Factors, multiples and primes

1 Write 90 as a product of prime factors.

2 Find the lowest common multiple of 9 and 12.

3 Is $2 \times 3 \times 5 + 1$ a prime number?

Show how you know.

4 Ribbons of 48 cm and 64 cm are cut into equal pieces, as long as possible, with none wasted.

How long is each piece and how many are there?

5 $3600 = 2^4 \times 3^2 \times 5^2$

Use this to show that $\sqrt{3600} = 60$.

6 Three runners take 60 s, 75 s and 90 s per lap.

They start together.

When are they first together at the start again?

7 Show that HCF × LCM = 18 × 30 for the numbers 18 and 30.

8 $x = 2^3 \times 5 \times 7$

Find the smallest whole number y such that xy is a square number.

Find $\sqrt{xy}$.

ANSWERS · REVISION MAT 4

Factors, multiples and primes

1 $2 \times 3^2 \times 5$

2 36

3 = 31

Yes: 31 has no factors other than 1 and 31.

4 HCF(48, 64) = 16

16 cm pieces; 3 + 4 = 7 pieces

5 Halve each power: $2^2 \times 3 \times 5$

= 60

6 LCM(60, 75, 90) = 900 s

After 15 minutes

7 HCF 6, LCM 90

$6 \times 90 = 540 = 18 \times 30$

8 Need $2 \times 5 \times 7$

$y = 70$; $\sqrt{xy} = 2^2 \times 5 \times 7 = 140$

Mr&Mrs MATHS