

6.9

1) $\text{pgcd}(231868, 8190)$? et ppcm ?

* $\text{pgcd}(a, b) = \text{pgcd}(b, x)$ avec $a = bq + x$.

$$231868 = 8190 \times 28 + 2548$$

$$8190 = 2548 \times 3 + 546$$

$$2548 = 546 \times 4 + 364$$

$$546 = 364 \times 1 + 182$$

$$364 = 182 \times 2 + 0$$

Donc $\text{pgcd}(231868, 8190) = 182$.

* $\text{pgcd}(a, b) \times \text{ppcm}(a, b) = a \times b$
 $\text{ppcm}(231868, 8190) = \frac{231868 \times 8190}{182} = 10\,434\,060$

2) * $23145 = 17 \times 1361 + 8$

$$17 = 8 \times 2 + 1$$

$$8 = 1 \times 8 + 0$$

$\text{pgcd}(23145, 17) = 1$

* $\text{ppcm}(23145, 17) = 23145 \times 17 = 393\,465$.

3) * $12345 = 678 \times 18 + 141$

$$678 = 141 \times 4 + 114$$

$$141 = 114 \times 1 + 27$$

$$114 = 27 \times 4 + 6$$

$$27 = 6 \times 4 + 3$$

$$6 = 3 \times 2 + 0$$

Donc $\text{pgcd}(12345, 678) = 3$

$$\text{ppcm}(12345, 678) = \frac{12345 \times 678}{3} = 2\,789\,970$$