

## ユークリッドの互除法<最大公約数> 1の解答

1. ユークリッドの互除法を用いて、次の数の最大公約数を求めなさい。

(1) 318, 901

$$901 \div 318 = 2 \cdots 265$$

$$318 \div 265 = 1 \cdots 53$$

$$265 \div 53 = 5 \cdots 0$$

求める最大公約数は 53 (318 = 53 × 6, 901 = 53 × 17)

答. 53

(2) 403, 364

$$403 \div 364 = 1 \cdots 39$$

$$364 \div 39 = 9 \cdots 13$$

$$39 \div 13 = 3 \cdots 0$$

求める最大公約数は 13 (403 = 13 × 31, 364 = 13 × 28)

答. 13

(3) 408, 527

$$527 \div 408 = 1 \cdots 119$$

$$408 \div 119 = 3 \cdots 51$$

$$119 \div 51 = 2 \cdots 17$$

$$51 \div 17 = 3 \cdots 0$$

求める最大公約数は 17 (408 = 17 × 24, 527 = 17 × 31)

答. 17

(4) 481, 333

$$481 \div 333 = 1 \cdots 148$$

$$333 \div 148 = 2 \cdots 37$$

$$148 \div 37 = 4 \cdots 0$$

求める最大公約数は 37 (481 = 37 × 13, 333 = 37 × 9)

答. 37

(5) 738, 779

$$779 \div 738 = 1 \cdots 41$$

$$738 \div 41 = 18 \cdots 0$$

求める最大公約数は 41 (738 = 41 × 18, 779 = 41 × 19)

答. 41

(6) 846, 893

$$893 \div 846 = 1 \cdots 47$$

$$846 \div 47 = 18 \cdots 0$$

求める最大公約数は 47 (846 = 47 × 18, 893 = 47 × 19)

答. 47

(7) 913, 308

$$913 \div 308 = 2 \cdots 297$$

$$308 \div 297 = 1 \cdots 11$$

$$297 \div 11 = 27 \cdots 0$$

求める最大公約数は 11 (913 = 11 × 83, 308 = 11 × 28)

答. 11

(8) 946, 817

$$946 \div 817 = 1 \cdots 129$$

$$817 \div 129 = 6 \cdots 43$$

$$129 \div 43 = 3 \cdots 0$$

求める最大公約数は 43 (946 = 43 × 22, 817 = 43 × 19)

答. 43

## ユークリッドの互除法<最大公約数> 2の解答

1. ユークリッドの互除法を用いて、次の数の最大公約数を求めなさい。

(1) 459, 629

$$629 \div 459 = 1 \cdots 170$$

$$459 \div 170 = 2 \cdots 119$$

$$170 \div 119 = 1 \cdots 51$$

$$119 \div 51 = 2 \cdots 17$$

$$51 \div 17 = 3 \cdots 0$$

求める最大公約数は 17 (459 = 17 × 27, 629 = 17 × 37)

答. 17

(2) 493, 464

$$493 \div 464 = 1 \cdots 29$$

$$464 \div 29 = 16 \cdots 0$$

求める最大公約数は 29 (493 = 29 × 17, 464 = 29 × 16)

答. 29

(3) 529, 437

$$529 \div 437 = 1 \cdots 92$$

$$437 \div 92 = 4 \cdots 69$$

$$92 \div 69 = 1 \cdots 23$$

$$69 \div 23 = 3 \cdots 0$$

求める最大公約数は 23 (529 = 23 × 23, 437 = 23 × 19)

答. 23

(4) 589, 899

$$899 \div 589 = 1 \cdots 310$$

$$589 \div 310 = 1 \cdots 279$$

$$310 \div 279 = 1 \cdots 31$$

$$279 \div 31 = 9 \cdots 0$$

求める最大公約数は 31 (589 = 31 × 19, 899 = 31 × 29)

答. 31

(5) 611, 846

$$846 \div 611 = 1 \cdots 235$$

$$611 \div 235 = 2 \cdots 141$$

$$235 \div 141 = 1 \cdots 94$$

$$141 \div 94 = 1 \cdots 47$$

$$94 \div 47 = 2 \cdots 0$$

求める最大公約数は 47 (611 = 47 × 13, 846 = 47 × 18)

答. 47

(6) 688, 989

$$989 \div 688 = 1 \cdots 301$$

$$688 \div 301 = 2 \cdots 86$$

$$301 \div 86 = 3 \cdots 43$$

$$86 \div 43 = 2 \cdots 0$$

求める最大公約数は 43 (688 = 43 × 16, 989 = 43 × 23)

答. 43

(7) 779, 697

$$779 \div 697 = 1 \cdots 82$$

$$697 \div 82 = 8 \cdots 41$$

$$82 \div 41 = 2 \cdots 0$$

求める最大公約数は 41 (779 = 41 × 19, 697 = 41 × 17)

答. 41

(8) 893, 551

$$893 \div 551 = 1 \cdots 342$$

$$551 \div 342 = 1 \cdots 209$$

$$342 \div 209 = 1 \cdots 133$$

$$209 \div 133 = 1 \cdots 76$$

$$133 \div 76 = 1 \cdots 57$$

$$76 \div 57 = 1 \cdots 19$$

$$57 \div 19 = 3 \cdots 0$$

求める最大公約数は 19 (893 = 19 × 47, 551 = 19 × 29)

答. 19

## ユークリッドの互除法<最大公約数>3の解答

1. ユークリッドの互除法を用いて、次の数の最大公約数を求めなさい。

(1) 364, 949

$$949 \div 364 = 2 \cdots 221$$

$$364 \div 221 = 1 \cdots 143$$

$$221 \div 143 = 1 \cdots 78$$

$$143 \div 78 = 1 \cdots 65$$

$$78 \div 65 = 1 \cdots 13$$

$$65 \div 13 = 5 \cdots 0$$

求める最大公約数は 13 ( $364 = 13 \times 28$ ,  $949 = 13 \times 73$ )

答. 13

(2) 403, 682

$$682 \div 403 = 1 \cdots 279$$

$$403 \div 279 = 1 \cdots 124$$

$$279 \div 124 = 2 \cdots 31$$

$$124 \div 31 = 4 \cdots 0$$

求める最大公約数は 31 ( $403 = 31 \times 13$ ,  $682 = 31 \times 22$ )

答. 31

(3) 407, 308

$$407 \div 308 = 1 \cdots 99$$

$$308 \div 99 = 3 \cdots 11$$

$$99 \div 11 = 9 \cdots 0$$

求める最大公約数は 11 ( $407 = 11 \times 37$ ,  $308 = 11 \times 28$ )

答. 11

(4) 408, 799

$$799 \div 408 = 1 \cdots 391$$

$$408 \div 391 = 1 \cdots 17$$

$$391 \div 17 = 23 \cdots 0$$

求める最大公約数は 17 ( $408 = 17 \times 24$ ,  $799 = 17 \times 47$ )

答. 17

(5) 494, 361

$$494 \div 361 = 1 \cdots 133$$

$$361 \div 133 = 2 \cdots 95$$

$$133 \div 95 = 1 \cdots 38$$

$$95 \div 38 = 2 \cdots 19$$

$$38 \div 19 = 2 \cdots 0$$

求める最大公約数は 19 ( $494 = 19 \times 26$ ,  $361 = 19 \times 19$ )

答. 19

(6) 629, 555

$$629 \div 555 = 1 \cdots 74$$

$$555 \div 74 = 7 \cdots 37$$

$$74 \div 37 = 2 \cdots 0$$

求める最大公約数は 37 ( $629 = 37 \times 17$ ,  $555 = 37 \times 15$ )

答. 37

(7) 731, 344

$$731 \div 344 = 2 \cdots 43$$

$$344 \div 43 = 8 \cdots 0$$

求める最大公約数は 43 ( $731 = 43 \times 17$ ,  $344 = 43 \times 8$ )

答. 43

(8) 841, 493

$$841 \div 493 = 1 \cdots 348$$

$$493 \div 348 = 1 \cdots 145$$

$$348 \div 145 = 2 \cdots 58$$

$$145 \div 58 = 2 \cdots 29$$

$$58 \div 29 = 2 \cdots 0$$

求める最大公約数は 29 ( $841 = 29 \times 29$ ,  $493 = 29 \times 17$ )

答. 29

## ユークリッドの互除法<最大公約数> 4の解答

1. ユークリッドの互除法を用いて、次の数の最大公約数を求めなさい。

(1) 377, 312

$$377 \div 312 = 1 \cdots 65$$

$$312 \div 65 = 4 \cdots 52$$

$$65 \div 52 = 1 \cdots 13$$

$$52 \div 13 = 4 \cdots 0$$

求める最大公約数は 13 ( $377 = 13 \times 29$ ,  $312 = 13 \times 24$ )

答. 13

(2) 536, 871

$$871 \div 536 = 1 \cdots 335$$

$$536 \div 335 = 1 \cdots 201$$

$$335 \div 201 = 1 \cdots 134$$

$$201 \div 134 = 1 \cdots 67$$

$$134 \div 67 = 2 \cdots 0$$

求める最大公約数は 67 ( $536 = 67 \times 8$ ,  $871 = 67 \times 13$ )

答. 67

(3) 667, 551

$$667 \div 551 = 1 \cdots 116$$

$$551 \div 116 = 4 \cdots 87$$

$$116 \div 87 = 1 \cdots 29$$

$$87 \div 29 = 3 \cdots 0$$

求める最大公約数は 29 ( $667 = 29 \times 23$ ,  $551 = 29 \times 19$ )

答. 29

(4) 667, 529

$$667 \div 529 = 1 \cdots 138$$

$$529 \div 138 = 3 \cdots 115$$

$$138 \div 115 = 1 \cdots 23$$

$$115 \div 23 = 5 \cdots 0$$

求める最大公約数は 23 ( $667 = 23 \times 29$ ,  $529 = 23 \times 23$ )

答. 23

(5) 799, 893

$$893 \div 799 = 1 \cdots 94$$

$$799 \div 94 = 8 \cdots 47$$

$$94 \div 47 = 2 \cdots 0$$

求める最大公約数は 47 ( $799 = 47 \times 17$ ,  $893 = 47 \times 19$ )

答. 47

(6) 851, 962

$$962 \div 851 = 1 \cdots 111$$

$$851 \div 111 = 7 \cdots 74$$

$$111 \div 74 = 1 \cdots 37$$

$$74 \div 37 = 2 \cdots 0$$

求める最大公約数は 37 ( $851 = 37 \times 23$ ,  $962 = 37 \times 26$ )

答. 37

(7) 899, 589

$$899 \div 589 = 1 \cdots 310$$

$$589 \div 310 = 1 \cdots 279$$

$$310 \div 279 = 1 \cdots 31$$

$$279 \div 31 = 9 \cdots 0$$

求める最大公約数は 31 ( $899 = 31 \times 29$ ,  $589 = 31 \times 19$ )

答. 31

(8) 901, 323

$$901 \div 323 = 2 \cdots 255$$

$$323 \div 255 = 1 \cdots 68$$

$$255 \div 68 = 3 \cdots 51$$

$$68 \div 51 = 1 \cdots 17$$

$$51 \div 17 = 3 \cdots 0$$

求める最大公約数は 17 ( $901 = 17 \times 53$ ,  $323 = 17 \times 19$ )

答. 17

## ユークリッドの互除法<最大公約数>5の解答

1. ユークリッドの互除法を用いて、次の数の最大公約数を求めなさい。

(1) 312, 871

$$871 \div 312 = 2 \cdots 247$$

$$312 \div 247 = 1 \cdots 65$$

$$247 \div 65 = 3 \cdots 52$$

$$65 \div 52 = 1 \cdots 13$$

$$52 \div 13 = 4 \cdots 0$$

求める最大公約数は 13 ( $312 = 13 \times 24$ ,  $871 = 13 \times 67$ )

答. 13

(2) 340, 323

$$340 \div 323 = 1 \cdots 17$$

$$323 \div 17 = 19 \cdots 0$$

求める最大公約数は 17 ( $340 = 17 \times 20$ ,  $323 = 17 \times 19$ )

答. 17

(3) 348, 899

$$899 \div 348 = 2 \cdots 203$$

$$348 \div 203 = 1 \cdots 145$$

$$203 \div 145 = 1 \cdots 58$$

$$145 \div 58 = 2 \cdots 29$$

$$58 \div 29 = 2 \cdots 0$$

求める最大公約数は 29 ( $348 = 29 \times 12$ ,  $899 = 29 \times 31$ )

答. 29

(4) 530, 689

$$689 \div 530 = 1 \cdots 159$$

$$530 \div 159 = 3 \cdots 53$$

$$159 \div 53 = 3 \cdots 0$$

求める最大公約数は 53 ( $530 = 53 \times 10$ ,  $689 = 53 \times 13$ )

答. 53

(5) 703, 777

$$777 \div 703 = 1 \cdots 74$$

$$703 \div 74 = 9 \cdots 37$$

$$74 \div 37 = 2 \cdots 0$$

求める最大公約数は 37 ( $703 = 37 \times 19$ ,  $777 = 37 \times 21$ )

答. 37

(6) 893, 423

$$893 \div 423 = 2 \cdots 47$$

$$423 \div 47 = 9 \cdots 0$$

求める最大公約数は 47 ( $893 = 47 \times 19$ ,  $423 = 47 \times 9$ )

答. 47

(7) 943, 621

$$943 \div 621 = 1 \cdots 322$$

$$621 \div 322 = 1 \cdots 299$$

$$322 \div 299 = 1 \cdots 23$$

$$299 \div 23 = 13 \cdots 0$$

求める最大公約数は 23 ( $943 = 23 \times 41$ ,  $621 = 23 \times 27$ )

答. 23

(8) 989, 731

$$989 \div 731 = 1 \cdots 258$$

$$731 \div 258 = 2 \cdots 215$$

$$258 \div 215 = 1 \cdots 43$$

$$215 \div 43 = 5 \cdots 0$$

求める最大公約数は 43 ( $989 = 43 \times 23$ ,  $731 = 43 \times 17$ )

答. 43