

Worksheet

05/07/2020

Free on dw-math.com

Problem quickname: 2001

1)

Determine the greatest common divisor (GCD). Use the Euclidean Algorithm as shown in the example. Write down the computational steps in detail.

Quick:
2001

a) Number 1: 876, Number 2: 203. Determine the larger number of these: 876.

Round 1:

Determine the quotient and remainder of $876 : 203$.

We have $876 = 4 \cdot 203 + 64$, so the quotient is 4, the remainder is 64.

Now select the divisor 203 of this round as new dividend and the remainder 64 as new divisor.

Round 2:

Determine the quotient and remainder of $203 : 64$.

We have $203 = 3 \cdot 64 + 11$, so the quotient is 3, the remainder is 11.

Now select the divisor 64 of this round as new dividend and the remainder 11 as new divisor.

Round 3:

Determine the quotient and remainder of $64 : 11$.

We have $64 = 5 \cdot 11 + 9$, so the quotient is 5, the remainder is 9.

Now select the divisor 11 of this round as new dividend and the remainder 9 as new divisor.

Round 4:

Determine the quotient and remainder of $11 : 9$.

We have $11 = 1 \cdot 9 + 2$, so the quotient is 1, the remainder is 2.

Now select the divisor 9 of this round as new dividend and the remainder 2 as new divisor.

Round 5:

Determine the quotient and remainder of $9 : 2$.

We have $9 = 4 \cdot 2 + 1$, so the quotient is 4, the remainder is 1.

Now select the divisor 2 of this round as new dividend and the remainder 1 as new divisor.

Round 6:

Determine the quotient and remainder of $2 : 1$.

We have $2 = 2 \cdot 1 + 0$, so the quotient is 2, the remainder is 0.

Finished. The last dividend 1 is also the GCD, so we have $\gcd(876,203)=1$.

- b) Number 1: 506, Number 2: 838. Determine the larger number of these: 838.

Round 1:

Determine the quotient and remainder of $838 : 506$.

We have $838 = 1 \cdot 506 + 332$, so the quotient is 1, the remainder is 332.

Now select the divisor 506 of this round as new dividend and the remainder 332 as new divisor.

Round 2:

Determine the quotient and remainder of $506 : 332$.

We have $506 = 1 \cdot 332 + 174$, so the quotient is 1, the remainder is 174.

Now select the divisor 332 of this round as new dividend and the remainder 174 as new divisor.

Round 3:

Determine the quotient and remainder of $332 : 174$.

We have $332 = 1 \cdot 174 + 158$, so the quotient is 1, the remainder is 158.

Now select the divisor 174 of this round as new dividend and the remainder 158 as new divisor.

Round 4:

Determine the quotient and remainder of $174 : 158$.

We have $174 = 1 \cdot 158 + 16$, so the quotient is 1, the remainder is 16.

Now select the divisor 158 of this round as new dividend and the remainder 16 as new divisor.

Round 5:

Determine the quotient and remainder of $158 : 16$.

We have $158 = 9 \cdot 16 + 14$, so the quotient is 9, the remainder is 14.

Now select the divisor 16 of this round as new dividend and the remainder 14 as new divisor.

Round 6:

Determine the quotient and remainder of $16 : 14$.

We have $16 = 1 \cdot 14 + 2$, so the quotient is 1, the remainder is 2.

Now select the divisor 14 of this round as new dividend and the remainder 2 as new divisor.

Round 7:

Determine the quotient and remainder of $14 : 2$.

We have $14 = 7 \cdot 2 + 0$, so the quotient is 7, the remainder is 0.

Finished. The last dividend 2 is also the GCD, so we have $\gcd(838,506)=2$.

c) Number 1: 647, Number 2: 331. Determine the larger number of these: 647.

Round 1:

Determine the quotient and remainder of $647 : 331$.

We have $647 = 1 \cdot 331 + 316$, so the quotient is 1, the remainder is 316.

Now select the divisor 331 of this round as new dividend and the remainder 316 as new divisor.

Round 2:

Determine the quotient and remainder of $331 : 316$.

We have $331 = 1 \cdot 316 + 15$, so the quotient is 1, the remainder is 15.

Now select the divisor 316 of this round as new dividend and the remainder 15 as new divisor.

Round 3:

Determine the quotient and remainder of $316 : 15$.

We have $316 = 21 \cdot 15 + 1$, so the quotient is 21, the remainder is 1.

Now select the divisor 15 of this round as new dividend and the remainder 1 as new divisor.

Round 4:

Determine the quotient and remainder of $15 : 1$.

We have $15 = 15 \cdot 1 + 0$, so the quotient is 15, the remainder is 0.

Finished. The last dividend 1 is also the GCD, so we have $\gcd(647,331)=1$.

d) Number 1: 372, Number 2: 630. Determine the larger number of these: 630.

Round 1:

Determine the quotient and remainder of $630 : 372$.

We have $630 = 1 \cdot 372 + 258$, so the quotient is 1, the remainder is 258.

Now select the divisor 372 of this round as new dividend and the remainder 258 as new divisor.

Round 2:

Determine the quotient and remainder of $372 : 258$.

We have $372 = 1 \cdot 258 + 114$, so the quotient is 1, the remainder is 114.

Now select the divisor 258 of this round as new dividend and the remainder 114 as new divisor.

Round 3:

Determine the quotient and remainder of $258 : 114$.

We have $258 = 2 \cdot 114 + 30$, so the quotient is 2, the remainder is 30.

Now select the divisor 114 of this round as new dividend and the remainder 30 as new divisor.

Round 4:

Determine the quotient and remainder of $114 : 30$.

We have $114 = 3 \cdot 30 + 24$, so the quotient is 3, the remainder is 24.

Now select the divisor 30 of this round as new dividend and the remainder 24 as new divisor.

Round 5:

Determine the quotient and remainder of $30 : 24$.

We have $30 = 1 \cdot 24 + 6$, so the quotient is 1, the remainder is 6.

Now select the divisor 24 of this round as new dividend and the remainder 6 as new divisor.

Round 6:

Determine the quotient and remainder of $24 : 6$.

We have $24 = 4 \cdot 6 + 0$, so the quotient is 4, the remainder is 0.

Finished. The last dividend 6 is also the GCD, so we have $\gcd(630,372)=6$.

e) Number 1: 290, Number 2: 534. Determine the larger number of these: 534.

Round 1:

Determine the quotient and remainder of $534 : 290$.

We have $534 = 1 \cdot 290 + 244$, so the quotient is 1, the remainder is 244.

Now select the divisor 290 of this round as new dividend and the remainder 244 as new divisor.

Round 2:

Determine the quotient and remainder of $290 : 244$.

We have $290 = 1 \cdot 244 + 46$, so the quotient is 1, the remainder is 46.

Now select the divisor 244 of this round as new dividend and the remainder 46 as new divisor.

Round 3:

Determine the quotient and remainder of $244 : 46$.

We have $244 = 5 \cdot 46 + 14$, so the quotient is 5, the remainder is 14.

Now select the divisor 46 of this round as new dividend and the remainder 14 as new divisor.

Round 4:

Determine the quotient and remainder of $46 : 14$.

We have $46 = 3 \cdot 14 + 4$, so the quotient is 3, the remainder is 4.

Now select the divisor 14 of this round as new dividend and the remainder 4 as new divisor.

Round 5:

Determine the quotient and remainder of $14 : 4$.

We have $14 = 3 \cdot 4 + 2$, so the quotient is 3, the remainder is 2.

Now select the divisor 4 of this round as new dividend and the remainder 2 as new divisor.

Round 6:

Determine the quotient and remainder of $4 : 2$.

We have $4 = 2 \cdot 2 + 0$, so the quotient is 2, the remainder is 0.

Finished. The last dividend 2 is also the GCD, so we have $\text{gcd}(534,290)=2$.

f) Number 1: 765, Number 2: 340. Determine the larger number of these: 765.

Round 1:

Determine the quotient and remainder of $765 : 340$.

We have $765 = 2 \cdot 340 + 85$, so the quotient is 2, the remainder is 85.

Now select the divisor 340 of this round as new dividend and the remainder 85 as new divisor.

Round 2:

Determine the quotient and remainder of $340 : 85$.

We have $340 = 4 \cdot 85 + 0$, so the quotient is 4, the remainder is 0.

Finished. The last dividend 85 is also the GCD, so we have $\text{gcd}(765,340)=85$.

g) Number 1: 626, Number 2: 816. Determine the larger number of these: 816.

Round 1:

Determine the quotient and remainder of $816 : 626$.

We have $816 = 1 \cdot 626 + 190$, so the quotient is 1, the remainder is 190.

Now select the divisor 626 of this round as new dividend and the remainder 190 as new divisor.

Round 2:

Determine the quotient and remainder of $626 : 190$.

We have $626 = 3 \cdot 190 + 56$, so the quotient is 3, the remainder is 56.

Now select the divisor 190 of this round as new dividend and the remainder 56 as new divisor.

Round 3:

Determine the quotient and remainder of $190 : 56$.

We have $190 = 3 \cdot 56 + 22$, so the quotient is 3, the remainder is 22.

Now select the divisor 56 of this round as new dividend and the remainder 22 as new divisor.

Round 4:

Determine the quotient and remainder of $56 : 22$.

We have $56 = 2 \cdot 22 + 12$, so the quotient is 2, the remainder is 12.

Now select the divisor 22 of this round as new dividend and the remainder 12 as new divisor.

Round 5:

Determine the quotient and remainder of $22 : 12$.

We have $22 = 1 \cdot 12 + 10$, so the quotient is 1, the remainder is 10.

Now select the divisor 12 of this round as new dividend and the remainder 10 as new divisor.

Round 6:

Determine the quotient and remainder of $12 : 10$.

We have $12 = 1 \cdot 10 + 2$, so the quotient is 1, the remainder is 2.

Now select the divisor 10 of this round as new dividend and the remainder 2 as new divisor.

Round 7:

Determine the quotient and remainder of $10 : 2$.

We have $10 = 5 \cdot 2 + 0$, so the quotient is 5, the remainder is 0.

Finished. The last dividend 2 is also the GCD, so we have $\gcd(816,626)=2$.

2)

Determine the greatest common divisor (GCD). Use the Euclidean Algorithm and write down the computational steps in detail.

Quick:
2001

a) Number 1: 82, Number 2: 78. Determine the larger number of these: 82.

Round 1:

Determine the quotient and remainder of $82 : 78$.

We have $82 = 1 \cdot 78 + 4$, so the quotient is 1, the remainder is 4.

Now select the divisor 78 of this round as new dividend and the remainder 4 as new divisor.

Round 2:

Determine the quotient and remainder of $78 : 4$.

We have $78 = 19 \cdot 4 + 2$, so the quotient is 19, the remainder is 2.

Now select the divisor 4 of this round as new dividend and the remainder 2 as new divisor.

Round 3:

Determine the quotient and remainder of $4 : 2$.

We have $4 = 2 \cdot 2 + 0$, so the quotient is 2, the remainder is 0.

Finished. The last dividend 2 is also the GCD, so we have $\gcd(82,78)=2$.

b) Number 1: 74, Number 2: 46. Determine the larger number of these: 74.

Round 1:

Determine the quotient and remainder of $74 : 46$.

We have $74 = 1 \cdot 46 + 28$, so the quotient is 1, the remainder is 28.

Now select the divisor 46 of this round as new dividend and the remainder 28 as new divisor.

Round 2:

Determine the quotient and remainder of $46 : 28$.

We have $46 = 1 \cdot 28 + 18$, so the quotient is 1, the remainder is 18.

Now select the divisor 28 of this round as new dividend and the remainder 18 as new divisor.

Round 3:

Determine the quotient and remainder of $28 : 18$.

We have $28 = 1 \cdot 18 + 10$, so the quotient is 1, the remainder is 10.

Now select the divisor 18 of this round as new dividend and the remainder 10 as new divisor.

Round 4:

Determine the quotient and remainder of $18 : 10$.

We have $18 = 1 \cdot 10 + 8$, so the quotient is 1, the remainder is 8.

Now select the divisor 10 of this round as new dividend and the remainder 8 as new divisor.

Round 5:

Determine the quotient and remainder of $10 : 8$.

We have $10 = 1 \cdot 8 + 2$, so the quotient is 1, the remainder is 2.

Now select the divisor 8 of this round as new dividend and the remainder 2 as new divisor.

Round 6:

Determine the quotient and remainder of $8 : 2$.

We have $8 = 4 \cdot 2 + 0$, so the quotient is 4, the remainder is 0.

Finished. The last dividend 2 is also the GCD, so we have $\gcd(74,46)=2$.

c) Number 1: 79, Number 2: 47. Determine the larger number of these: 79.

Round 1:

Determine the quotient and remainder of $79 : 47$.

We have $79 = 1 \cdot 47 + 32$, so the quotient is 1, the remainder is 32.

Now select the divisor 47 of this round as new dividend and the remainder 32 as new divisor.

Round 2:

Determine the quotient and remainder of $47 : 32$.

We have $47 = 1 \cdot 32 + 15$, so the quotient is 1, the remainder is 15.

Now select the divisor 32 of this round as new dividend and the remainder 15 as new divisor.

Round 3:

Determine the quotient and remainder of $32 : 15$.

We have $32 = 2 \cdot 15 + 2$, so the quotient is 2, the remainder is 2.

Now select the divisor 15 of this round as new dividend and the remainder 2 as new divisor.

Round 4:

Determine the quotient and remainder of $15 : 2$.

We have $15 = 7 \cdot 2 + 1$, so the quotient is 7, the remainder is 1.

Now select the divisor 2 of this round as new dividend and the remainder 1 as new divisor.

Round 5:

Determine the quotient and remainder of $2 : 1$.

We have $2 = 2 \cdot 1 + 0$, so the quotient is 2, the remainder is 0.

Finished. The last dividend 1 is also the GCD, so we have $\gcd(79,47)=1$.

- d) Number 1: 50, Number 2: 82. Determine the larger number of these: 82.

Round 1:

Determine the quotient and remainder of $82 : 50$.

We have $82 = 1 \cdot 50 + 32$, so the quotient is 1, the remainder is 32.

Now select the divisor 50 of this round as new dividend and the remainder 32 as new divisor.

Round 2:

Determine the quotient and remainder of $50 : 32$.

We have $50 = 1 \cdot 32 + 18$, so the quotient is 1, the remainder is 18.

Now select the divisor 32 of this round as new dividend and the remainder 18 as new divisor.

Round 3:

Determine the quotient and remainder of $32 : 18$.

We have $32 = 1 \cdot 18 + 14$, so the quotient is 1, the remainder is 14.

Now select the divisor 18 of this round as new dividend and the remainder 14 as new divisor.

Round 4:

Determine the quotient and remainder of $18 : 14$.

We have $18 = 1 \cdot 14 + 4$, so the quotient is 1, the remainder is 4.

Now select the divisor 14 of this round as new dividend and the remainder 4 as new divisor.

Round 5:

Determine the quotient and remainder of $14 : 4$.

We have $14 = 3 \cdot 4 + 2$, so the quotient is 3, the remainder is 2.

Now select the divisor 4 of this round as new dividend and the remainder 2 as new divisor.

Round 6:

Determine the quotient and remainder of $4 : 2$.

We have $4 = 2 \cdot 2 + 0$, so the quotient is 2, the remainder is 0.

Finished. The last dividend 2 is also the GCD, so we have $\gcd(82,50)=2$.

e) Number 1: 70, Number 2: 66. Determine the larger number of these: 70.

Round 1:

Determine the quotient and remainder of $70 : 66$.

We have $70 = 1 \cdot 66 + 4$, so the quotient is 1, the remainder is 4.

Now select the divisor 66 of this round as new dividend and the remainder 4 as new divisor.

Round 2:

Determine the quotient and remainder of $66 : 4$.

We have $66 = 16 \cdot 4 + 2$, so the quotient is 16, the remainder is 2.

Now select the divisor 4 of this round as new dividend and the remainder 2 as new divisor.

Round 3:

Determine the quotient and remainder of $4 : 2$.

We have $4 = 2 \cdot 2 + 0$, so the quotient is 2, the remainder is 0.

Finished. The last dividend 2 is also the GCD, so we have $\gcd(70,66)=2$.

f) Number 1: 28, Number 2: 24. Determine the larger number of these: 28.

Round 1:

Determine the quotient and remainder of $28 : 24$.

We have $28 = 1 \cdot 24 + 4$, so the quotient is 1, the remainder is 4.

Now select the divisor 24 of this round as new dividend and the remainder 4 as new divisor.

Round 2:

Determine the quotient and remainder of $24 : 4$.

We have $24 = 6 \cdot 4 + 0$, so the quotient is 6, the remainder is 0.

Finished. The last dividend 4 is also the GCD, so we have $\gcd(28,24)=4$.

g) Number 1: 34, Number 2: 44. Determine the larger number of these: 44.

Round 1:

Determine the quotient and remainder of $44 : 34$.

We have $44 = 1 \cdot 34 + 10$, so the quotient is 1, the remainder is 10.

Now select the divisor 34 of this round as new dividend and the remainder 10 as new divisor.

Round 2:

Determine the quotient and remainder of $34 : 10$.

We have $34 = 3 \cdot 10 + 4$, so the quotient is 3, the remainder is 4.

Now select the divisor 10 of this round as new dividend and the remainder 4 as new divisor.

Round 3:

Determine the quotient and remainder of $10 : 4$.

We have $10 = 2 \cdot 4 + 2$, so the quotient is 2, the remainder is 2.

Now select the divisor 4 of this round as new dividend and the remainder 2 as new divisor.

Round 4:

Determine the quotient and remainder of $4 : 2$.

We have $4 = 2 \cdot 2 + 0$, so the quotient is 2, the remainder is 0.

Finished. The last dividend 2 is also the GCD, so we have $\gcd(44,34)=2$.

3)

Determine the greatest common divisor (GCD). Use the Euclidean Algorithm as shown in the example. Write down the computational steps in detail.

Quick:
2001

a) Number 1: 22, Number 2: 76. Determine the larger number of these: 76.

Round 1:

Determine the quotient and remainder of $76 : 22$.

We have $76 = 3 \cdot 22 + 10$, so the quotient is 3, the remainder is 10.

Now select the divisor 22 of this round as new dividend and the remainder 10 as new divisor.

Round 2:

Determine the quotient and remainder of $22 : 10$.

We have $22 = 2 \cdot 10 + 2$, so the quotient is 2, the remainder is 2.

Now select the divisor 10 of this round as new dividend and the remainder 2 as new divisor.

Round 3:

Determine the quotient and remainder of $10 : 2$.

We have $10 = 5 \cdot 2 + 0$, so the quotient is 5, the remainder is 0.

Finished. The last dividend 2 is also the GCD, so we have $\gcd(76,22)=2$.

- b) Number 1: 45, Number 2: 27. Determine the larger number of these: 45.

Round 1:

Determine the quotient and remainder of $45 : 27$.

We have $45 = 1 \cdot 27 + 18$, so the quotient is 1, the remainder is 18.

Now select the divisor 27 of this round as new dividend and the remainder 18 as new divisor.

Round 2:

Determine the quotient and remainder of $27 : 18$.

We have $27 = 1 \cdot 18 + 9$, so the quotient is 1, the remainder is 9.

Now select the divisor 18 of this round as new dividend and the remainder 9 as new divisor.

Round 3:

Determine the quotient and remainder of $18 : 9$.

We have $18 = 2 \cdot 9 + 0$, so the quotient is 2, the remainder is 0.

Finished. The last dividend 9 is also the GCD, so we have $\gcd(45,27)=9$.

- c) Number 1: 38, Number 2: 46. Determine the larger number of these: 46.

Round 1:

Determine the quotient and remainder of $46 : 38$.

We have $46 = 1 \cdot 38 + 8$, so the quotient is 1, the remainder is 8.

Now select the divisor 38 of this round as new dividend and the remainder 8 as new divisor.

Round 2:

Determine the quotient and remainder of $38 : 8$.

We have $38 = 4 \cdot 8 + 6$, so the quotient is 4, the remainder is 6.

Now select the divisor 8 of this round as new dividend and the remainder 6 as new divisor.

Round 3:

Determine the quotient and remainder of $8 : 6$.

We have $8 = 1 \cdot 6 + 2$, so the quotient is 1, the remainder is 2.

Now select the divisor 6 of this round as new dividend and the remainder 2 as new divisor.

Round 4:

Determine the quotient and remainder of $6 : 2$.

We have $6 = 3 \cdot 2 + 0$, so the quotient is 3, the remainder is 0.

Finished. The last dividend 2 is also the GCD, so we have $\gcd(46,38)=2$.

d) Number 1: 30, Number 2: 42. Determine the larger number of these: 42.

Round 1:

Determine the quotient and remainder of $42 : 30$.

We have $42 = 1 \cdot 30 + 12$, so the quotient is 1, the remainder is 12.

Now select the divisor 30 of this round as new dividend and the remainder 12 as new divisor.

Round 2:

Determine the quotient and remainder of $30 : 12$.

We have $30 = 2 \cdot 12 + 6$, so the quotient is 2, the remainder is 6.

Now select the divisor 12 of this round as new dividend and the remainder 6 as new divisor.

Round 3:

Determine the quotient and remainder of $12 : 6$.

We have $12 = 2 \cdot 6 + 0$, so the quotient is 2, the remainder is 0.

Finished. The last dividend 6 is also the GCD, so we have $\gcd(42,30)=6$.

e) Number 1: 39, Number 2: 42. Determine the larger number of these: 42.

Round 1:

Determine the quotient and remainder of $42 : 39$.

We have $42 = 1 \cdot 39 + 3$, so the quotient is 1, the remainder is 3.

Now select the divisor 39 of this round as new dividend and the remainder 3 as new divisor.

Round 2:

Determine the quotient and remainder of $39 : 3$.

We have $39 = 13 \cdot 3 + 0$, so the quotient is 13, the remainder is 0.

Finished. The last dividend 3 is also the GCD, so we have $\gcd(42,39)=3$.

f) Number 1: 63, Number 2: 42. Determine the larger number of these: 63.

Round 1:

Determine the quotient and remainder of $63 : 42$.

We have $63 = 1 \cdot 42 + 21$, so the quotient is 1, the remainder is 21.

Now select the divisor 42 of this round as new dividend and the remainder 21 as new divisor.

Round 2:

Determine the quotient and remainder of $42 : 21$.

We have $42 = 2 \cdot 21 + 0$, so the quotient is 2, the remainder is 0.

Finished. The last dividend 21 is also the GCD, so we have $\text{gcd}(63,42)=21$.

g) Number 1: 60, Number 2: 38. Determine the larger number of these: 60.

Round 1:

Determine the quotient and remainder of $60 : 38$.

We have $60 = 1 \cdot 38 + 22$, so the quotient is 1, the remainder is 22.

Now select the divisor 38 of this round as new dividend and the remainder 22 as new divisor.

Round 2:

Determine the quotient and remainder of $38 : 22$.

We have $38 = 1 \cdot 22 + 16$, so the quotient is 1, the remainder is 16.

Now select the divisor 22 of this round as new dividend and the remainder 16 as new divisor.

Round 3:

Determine the quotient and remainder of $22 : 16$.

We have $22 = 1 \cdot 16 + 6$, so the quotient is 1, the remainder is 6.

Now select the divisor 16 of this round as new dividend and the remainder 6 as new divisor.

Round 4:

Determine the quotient and remainder of $16 : 6$.

We have $16 = 2 \cdot 6 + 4$, so the quotient is 2, the remainder is 4.

Now select the divisor 6 of this round as new dividend and the remainder 4 as new divisor.

Round 5:

Determine the quotient and remainder of $6 : 4$.

We have $6 = 1 \cdot 4 + 2$, so the quotient is 1, the remainder is 2.

Now select the divisor 4 of this round as new dividend and the remainder 2 as new divisor.

Round 6:

Determine the quotient and remainder of $4 : 2$.

We have $4 = 2 \cdot 2 + 0$, so the quotient is 2, the remainder is 0.

Finished. The last dividend 2 is also the GCD, so we have $\gcd(60,38)=2$.

4)

Determine the greatest common divisor (GCD). Use the Euclidean Algorithm as shown in the example. Write down the computational steps in detail.

Quick:
2001

a) Number 1: 946, Number 2: 450. Determine the larger number of these: 946.

Round 1:

Determine the quotient and remainder of $946 : 450$.

We have $946 = 2 \cdot 450 + 46$, so the quotient is 2, the remainder is 46.

Now select the divisor 450 of this round as new dividend and the remainder 46 as new divisor.

Round 2:

Determine the quotient and remainder of $450 : 46$.

We have $450 = 9 \cdot 46 + 36$, so the quotient is 9, the remainder is 36.

Now select the divisor 46 of this round as new dividend and the remainder 36 as new divisor.

Round 3:

Determine the quotient and remainder of $46 : 36$.

We have $46 = 1 \cdot 36 + 10$, so the quotient is 1, the remainder is 10.

Now select the divisor 36 of this round as new dividend and the remainder 10 as new divisor.

Round 4:

Determine the quotient and remainder of $36 : 10$.

We have $36 = 3 \cdot 10 + 6$, so the quotient is 3, the remainder is 6.

Now select the divisor 10 of this round as new dividend and the remainder 6 as new divisor.

Round 5:

Determine the quotient and remainder of $10 : 6$.

We have $10 = 1 \cdot 6 + 4$, so the quotient is 1, the remainder is 4.

Now select the divisor 6 of this round as new dividend and the remainder 4 as new divisor.

Round 6:

Determine the quotient and remainder of $6 : 4$.

We have $6 = 1 \cdot 4 + 2$, so the quotient is 1, the remainder is 2.

Now select the divisor 4 of this round as new dividend and the remainder 2 as new divisor.

Round 7:

Determine the quotient and remainder of $4 : 2$.

We have $4 = 2 \cdot 2 + 0$, so the quotient is 2, the remainder is 0.

Finished. The last dividend 2 is also the GCD, so we have $\gcd(946,450)=2$.

b) Number 1: 858, Number 2: 316. Determine the larger number of these: 858.

Round 1:

Determine the quotient and remainder of $858 : 316$.

We have $858 = 2 \cdot 316 + 226$, so the quotient is 2, the remainder is 226.

Now select the divisor 316 of this round as new dividend and the remainder 226 as new divisor.

Round 2:

Determine the quotient and remainder of $316 : 226$.

We have $316 = 1 \cdot 226 + 90$, so the quotient is 1, the remainder is 90.

Now select the divisor 226 of this round as new dividend and the remainder 90 as new divisor.

Round 3:

Determine the quotient and remainder of $226 : 90$.

We have $226 = 2 \cdot 90 + 46$, so the quotient is 2, the remainder is 46.

Now select the divisor 90 of this round as new dividend and the remainder 46 as new divisor.

Round 4:

Determine the quotient and remainder of $90 : 46$.

We have $90 = 1 \cdot 46 + 44$, so the quotient is 1, the remainder is 44.

Now select the divisor 46 of this round as new dividend and the remainder 44 as new divisor.

Round 5:

Determine the quotient and remainder of $46 : 44$.

We have $46 = 1 \cdot 44 + 2$, so the quotient is 1, the remainder is 2.

Now select the divisor 44 of this round as new dividend and the remainder 2 as new divisor.

Round 6:

Determine the quotient and remainder of $44 : 2$.

We have $44 = 22 \cdot 2 + 0$, so the quotient is 22, the remainder is 0.

Finished. The last dividend 2 is also the GCD, so we have $\gcd(858, 316) = 2$.

- c) Number 1: 488, Number 2: 704. Determine the larger number of these: 704.

Round 1:

Determine the quotient and remainder of $704 : 488$.

We have $704 = 1 \cdot 488 + 216$, so the quotient is 1, the remainder is 216.

Now select the divisor 488 of this round as new dividend and the remainder 216 as new divisor.

Round 2:

Determine the quotient and remainder of $488 : 216$.

We have $488 = 2 \cdot 216 + 56$, so the quotient is 2, the remainder is 56.

Now select the divisor 216 of this round as new dividend and the remainder 56 as new divisor.

Round 3:

Determine the quotient and remainder of $216 : 56$.

We have $216 = 3 \cdot 56 + 48$, so the quotient is 3, the remainder is 48.

Now select the divisor 56 of this round as new dividend and the remainder 48 as new divisor.

Round 4:

Determine the quotient and remainder of $56 : 48$.

We have $56 = 1 \cdot 48 + 8$, so the quotient is 1, the remainder is 8.

Now select the divisor 48 of this round as new dividend and the remainder 8 as new divisor.

Round 5:

Determine the quotient and remainder of $48 : 8$.

We have $48 = 6 \cdot 8 + 0$, so the quotient is 6, the remainder is 0.

Finished. The last dividend 8 is also the GCD, so we have $\gcd(704,488)=8$.

d) Number 1: 464, Number 2: 792. Determine the larger number of these: 792.

Round 1:

Determine the quotient and remainder of $792 : 464$.

We have $792 = 1 \cdot 464 + 328$, so the quotient is 1, the remainder is 328.

Now select the divisor 464 of this round as new dividend and the remainder 328 as new divisor.

Round 2:

Determine the quotient and remainder of $464 : 328$.

We have $464 = 1 \cdot 328 + 136$, so the quotient is 1, the remainder is 136.

Now select the divisor 328 of this round as new dividend and the remainder 136 as new divisor.

Round 3:

Determine the quotient and remainder of $328 : 136$.

We have $328 = 2 \cdot 136 + 56$, so the quotient is 2, the remainder is 56.

Now select the divisor 136 of this round as new dividend and the remainder 56 as new divisor.

Round 4:

Determine the quotient and remainder of $136 : 56$.

We have $136 = 2 \cdot 56 + 24$, so the quotient is 2, the remainder is 24.

Now select the divisor 56 of this round as new dividend and the remainder 24 as new divisor.

Round 5:

Determine the quotient and remainder of $56 : 24$.

We have $56 = 2 \cdot 24 + 8$, so the quotient is 2, the remainder is 8.

Now select the divisor 24 of this round as new dividend and the remainder 8 as new divisor.

Round 6:

Determine the quotient and remainder of $24 : 8$.

We have $24 = 3 \cdot 8 + 0$, so the quotient is 3, the remainder is 0.

Finished. The last dividend 8 is also the GCD, so we have $\gcd(792,464)=8$.

e) Number 1: 820, Number 2: 320. Determine the larger number of these: 820.

Round 1:

Determine the quotient and remainder of $820 : 320$.

We have $820 = 2 \cdot 320 + 180$, so the quotient is 2, the remainder is 180.

Now select the divisor 320 of this round as new dividend and the remainder 180 as new divisor.

Round 2:

Determine the quotient and remainder of $320 : 180$.

We have $320 = 1 \cdot 180 + 140$, so the quotient is 1, the remainder is 140.

Now select the divisor 180 of this round as new dividend and the remainder 140 as new divisor.

Round 3:

Determine the quotient and remainder of $180 : 140$.

We have $180 = 1 \cdot 140 + 40$, so the quotient is 1, the remainder is 40.

Now select the divisor 140 of this round as new dividend and the remainder 40 as new divisor.

Round 4:

Determine the quotient and remainder of $140 : 40$.

We have $140 = 3 \cdot 40 + 20$, so the quotient is 3, the remainder is 20.

Now select the divisor 40 of this round as new dividend and the remainder 20 as new divisor.

Round 5:

Determine the quotient and remainder of $40 : 20$.

We have $40 = 2 \cdot 20 + 0$, so the quotient is 2, the remainder is 0.

Finished. The last dividend 20 is also the GCD, so we have $\gcd(820, 320) = 20$.

f) Number 1: 873, Number 2: 921. Determine the larger number of these: 921.

Round 1:

Determine the quotient and remainder of $921 : 873$.

We have $921 = 1 \cdot 873 + 48$, so the quotient is 1, the remainder is 48.

Now select the divisor 873 of this round as new dividend and the remainder 48 as new divisor.

Round 2:

Determine the quotient and remainder of $873 : 48$.

We have $873 = 18 \cdot 48 + 9$, so the quotient is 18, the remainder is 9.

Now select the divisor 48 of this round as new dividend and the remainder 9 as new divisor.

Round 3:

Determine the quotient and remainder of $48 : 9$.

We have $48 = 5 \cdot 9 + 3$, so the quotient is 5, the remainder is 3.

Now select the divisor 9 of this round as new dividend and the remainder 3 as new divisor.

Round 4:

Determine the quotient and remainder of $9 : 3$.

We have $9 = 3 \cdot 3 + 0$, so the quotient is 3, the remainder is 0.

Finished. The last dividend 3 is also the GCD, so we have $\gcd(921,873)=3$.

g) Number 1: 765, Number 2: 772. Determine the larger number of these: 772.

Round 1:

Determine the quotient and remainder of $772 : 765$.

We have $772 = 1 \cdot 765 + 7$, so the quotient is 1, the remainder is 7.

Now select the divisor 765 of this round as new dividend and the remainder 7 as new divisor.

Round 2:

Determine the quotient and remainder of $765 : 7$.

We have $765 = 109 \cdot 7 + 2$, so the quotient is 109, the remainder is 2.

Now select the divisor 7 of this round as new dividend and the remainder 2 as new divisor.

Round 3:

Determine the quotient and remainder of $7 : 2$.

We have $7 = 3 \cdot 2 + 1$, so the quotient is 3, the remainder is 1.

Now select the divisor 2 of this round as new dividend and the remainder 1 as new divisor.

Round 4:

Determine the quotient and remainder of $2 : 1$.

We have $2 = 2 \cdot 1 + 0$, so the quotient is 2, the remainder is 0.

Finished. The last dividend 1 is also the GCD, so we have $\gcd(772,765)=1$.

Good Luck!