Worksheet

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Problem quickname: 2001

1)

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

a) Number 1: 24, Number 2: 28.

b) Number 1: 77, Number 2: 55.

c) Number 1: 54, Number 2: 27.

d) Number 1: 72, Number 2: 52.

e) Number 1: 21, Number 2: 52.

f) Number 1: 91, Number 2: 70.

g) Number 1: 28, Number 2: 91.

2)

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

a) Number 1: 55, Number 2: 48. Determine the larger number of these: 55.

Round 1:

Determine the quotient and remainder of $55 : 48$.

We have $55 = 1 \cdot 48 + 7$, so the quotient is 1, the remainder is 7.

Now select the divisor 48 of this round as new dividend and the remainder 7 as new divisor.

Round 2:

Determine the quotient and remainder of $48 : 7$.

We have $48 = 6 \cdot 7 + 6$, so the quotient is 6, the remainder is 6.

Now select the divisor 7 of this round as new dividend and the remainder 6 as new divisor.

Round 3:

Determine the quotient and remainder of $7 : 6$.

We have $7 = 1 \cdot 6 + 1$, so the quotient is 1, the remainder is 1.

Now select the divisor 6 of this round as new dividend and the remainder 1 as new divisor.

Round 4:

Determine the quotient and remainder of 6 : 1.

We have $6 = 6 \cdot 1 + 0$, so the quotient is 6, the remainder is 0.

Finished. The last dividend 1 ist also the GCD, so we have gcd(55,48)=1.

b) Number 1: 64, Number 2: 46.

c) Number 1: 21, Number 2: 39.

d) Number 1: 42, Number 2: 48.

e) Number 1: 68, Number 2: 59.

f) Number 1: 77, Number 2: 66.

g) Number 1: 68, Number 2: 27.

3)

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

a) Number 1: 351, Number 2: 969. Determine the larger number of these: 969.

Round 1:

Determine the quotient and remainder of 969 : 351.

We have $969 = 2 \cdot 351 + 267$, so the quotient is 2, the remainder is 267.

Now select the divisor 351 of this round as new dividend and the remainder 267 as new divisor.

Round 2:

Determine the quotient and remainder of 351 : 267.

We have $351 = 1 \cdot 267 + 84$, so the quotient is 1, the remainder is 84.

Now select the divisor 267 of this round as new dividend and the remainder 84 as new divisor.

Round 3:

Determine the quotient and remainder of 267 : 84.

We have $267 = 3 \cdot 84 + 15$, so the quotient is 3, the remainder is 15.

Now select the divisor 84 of this round as new dividend and the remainder 15 as new divisor.

Round 4:

Determine the quotient and remainder of $84 : 15$.

We have $84 = 5 \cdot 15 + 9$, so the quotient is 5, the remainder is 9.

Now select the divisor 15 of this round as new dividend and the remainder 9 as new divisor.

Round 5:

Determine the quotient and remainder of $15 : 9$.

We have $15 = 1 \cdot 9 + 6$, so the quotient is 1, the remainder is 6.

Now select the divisor 9 of this round as new dividend and the remainder 6 as new divisor.

Round 6:

Determine the quotient and remainder of $9 : 6$.

We have $9 = 1 \cdot 6 + 3$, so the quotient is 1, the remainder is 3.

Now select the divisor 6 of this round as new dividend and the remainder 3 as new divisor.

Round 7:

Determine the quotient and remainder of $6 : 3$.

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

Finished. The last dividend 3 ist also the GCD, so we have gcd(969,351)=3.

b) Number 1: 800, Number 2: 568.

c) Number 1: 620, Number 2: 284.

d) Number 1: 341, Number 2: 875.

e) Number 1: 921, Number 2: 879.

f) Number 1: 396, Number 2: 981.

g) Number 1: 228, Number 2: 915.

4)

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

a) Number 1: 82, Number 2: 58.

b) Number 1: 33, Number 2: 99.

c) Number 1: 86, Number 2: 43.

d) Number 1: 39, Number 2: 57.

e) Number 1: 46, Number 2: 97.

f) Number 1: 75, Number 2: 39.

g) Number 1: 24, Number 2: 54.

Good Luck!