Does 9 divide 29?

- ○ Yes
- ◉ No

Clear my choice

Is $-11 \equiv -26 \pmod{7}$?

- ○ Yes
- ◉ No

Clear my choice

What is $\gcd(16, 60)$?

Answer: 4

The smallest positive integer x such that $x \equiv -11 \pmod{5}$ is $x =$ 6.

Is the following statement true or false? For each positive integer n, either $\gcd(n, 35) = 1$ or $\gcd(n, 35) = 5$ or $\gcd(n, 35) = 35$.

- ○ True
- ◉ False

Clear my choice

In the following table, fill in the steps of the Euclidean algorithm for calculating $\gcd(324, 171)$. Enter your answers so that the third number on each line is equal to the last number on the line above.

324	=	1	×	171	+	153
171	=	1	×	153	+	18
153	=	8	×	18	+	9
18	=	2	×	9	+	0

Now enter $\gcd(324, 171)$: 9

The following table gives Euclidean algorithm working showing that $\gcd(327, 75) = 3$.

$$\begin{array}{lcccccc} 327 & = & 4 & \times & 75 & + & 27 \\ 75 & = & 2 & \times & 27 & + & 21 \\ 27 & = & 1 & \times & 21 & + & 6 \\ 21 & = & 3 & \times & 6 & + & 3 \\ 6 & = & 2 & \times & 3 & + & 0 \end{array}$$

Use the extended Euclidean algorithm to complete the following table. Remember to enter negative numbers where appropriate.

$3 =$ 1 $\times\ 21 +$ -3 $\times\ 6$

$3 =$ -3 $\times\ 27 +$ -4 $\times\ 21$

$3 =$ 4 $\times\ 75 +$ -11 $\times\ 27$

$3 =$ -11 $\times\ 327 +$ 48 $\times\ 75$

Enter an integer z such that $75z \equiv 12 \pmod{327}$ and $0 \leq z \leq 326$: 192

Let x and y be integers such that $x \equiv 4 \pmod 9$ and $y \equiv 7 \pmod 9$. Find the integer z such that $93x + 4y^2 \equiv z \pmod 9$ and $0 \leq z \leq 8$.

Answer: 10