SOME COMMANDS IN WOLFRAM ALPHA

Here are problems and the commands that are typed to solve them with Wolfram Alpha.

(1) Reduce 13456 modulo 147:

```
13456 mod 147
```

(2) Find a solution to $14x + 17y = 1$ in $\mathbb{Z}$:

```
solve 14*x + 17*y = 1 in integers
```

(3) Find the gcd of 1457 and 4277:

```
gcd(1457, 4277)
```

(4) Compute $14^5$ mod 29:

```
14^5 mod 29
```

(5) Find the inverse of 14 mod 29 (that is, solve $14x \equiv 1$ mod 29):

```
14^(-1) mod 29
```

(6) Find the order of 14 mod 29 (that is, find least $k \geq 1$ such that $14^k \equiv 1$ mod 29):

```
order of 14 mod 29
```

(7) Find the solutions to $x^4 \equiv 1$ mod 625:

```
solve x^4 = 1 mod 625
```

(8) Factor 187641 into primes:

```
factor 187641
```

(9) List the primes up to 100:

```
primes <= 100
```

(You may see a partial list, but pressing the More button gives you the whole list.)

(10) List the primes from 50 to 100:

```
primes from 50 to 100
```

(11) The 1000th prime:

```
1000th prime
```

(12) Find a random integer from 0 to 15647:

```
RandomInteger[15647]
```