> Math 211 : MAPLE Solution of Assignment #1 -- Your NAME

Problem 6: Compute gcd's of numbers:
(i) gcd(12345, 54321):

```
> igcd(12345, 54321);
```

$$3 \quad \textbf{(1)}$$

Thus, the gcd of 12345 and 54321 is 3.

(ii) gcd(213141516171, 262524232221):

```
> igcd(213141516171, 262524232221);
```

$$3 \quad \textbf{(2)}$$

Thus, gcd(213141516171, 262524232221) = 3.

Problem 7: Constructing lists.
(a) The list L of length 12 with k-th entry gcd(k^2, 24) is:

```
> L := [seq(igcd(k^2, 24), k = 1..12)];
```

$$L := [1, 4, 3, 8, 1, 12, 1, 8, 3, 4, 1, 24] \quad \textbf{(3)}$$

The 10th element of L is:

```
> L[10];
```

$$4 \quad \textbf{(4)}$$

(b) The list of lists LL of length 12 whose k-th entry is the ordered pair (k, gcd(k^2, 12)).
(Note that an ordered pair is the same as a list of length 2.)

```
> LL := [seq([k, igcd(k^2, 12)], k = 1..12)];
```

$$LL := [[1, 1], [2, 4], [3, 3], [4, 4], [5, 1], [6, 12], [7, 1], [8, 4], [9, 3], [10, 4], [11, 1], [12, 12]] \quad \textbf{(5)}$$

The element LL[9] is the 9th ordered pair, and LL[9,2] is the second element of this ordered pair:

```
> LL[9]; LL[9, 2];
```

$$[9, 3]$$
$$3 \quad \textbf{(6)}$$

(c) A one-line function f(x) to compute x^3 + x+ 1 is:

```
> f := x -> x^3 + x + 1;
```

$$f := x \mapsto x^3 + x + 1 \quad \textbf{(7)}$$

The value of f(x) at x = 20 is:

```
> f(20);
```

$$8021 \quad \textbf{(8)}$$

```
>
```