

Marking Scheme

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Penalties:

- 1) Misnaming submitted files: 5% of the assignment
- 2) Misnaming predicates: 25% of the question
- 3) Using unnecessary ! (predicate worked without it): 25% of the question
- 4) Including friends facts in friendster.pl such that it fails to load properly: 10% of assignment
- 5) Using between/3 in seq.pl: 0 on the question

Style and Documentation (worth 20%)

10 marks for style (nice indentation)

10 marks for documentation (clear, well-laid out, complete)

Correctness (worth 80%)

Each predicate was tested with a number of queries. The following lists each one followed by the correct output (the additional "false." output that may accompany a query is ignored).

10 marks for abs

10 test cases each worth 1

```
abs(0,0)
    true.
abs(1,1)
    true.
abs(-1,1)
    true.
abs(1,-1)
    false.
abs(-1,-1)
    false.
abs(-2,1)
    false.
abs(1,X)
    X = 1
abs(0,X)
    X = 0
abs(-1,X)
    X = 1
abs(-100,X)
    X = 100
```

20 marks for seq

5 test cases each worth 4

```
seq(0,5,X)
    X = 0 ;
    X = 1 ;
    X = 2 ;
    X = 3 ;
```

```

X = 4 ;
X = 5 ;
false.
seq(-5,0,X)
X = -5 ;
X = -4 ;
X = -3 ;
X = -2 ;
X = -1 ;
X = 0 ;
false.
seq(-5,5,X)
X = -5 ;
X = -4 ;
X = -3 ;
X = -2 ;
X = -1 ;
X = 0 ;
X = 1 ;
X = 2 ;
X = 3 ;
X = 4 ;
X = 5 ;
false.
seq(5,-5,X)
false.
seq(5,4,X)
false.

```

30 marks for iprod

6 test cases each worth 6 (except the initial one is a freebie because we didn't specify what to do in the case of empty vectors, so everyone passed this)

```

iprod([],[],X)
X = 0.
or undefined.
iprod([0],[5],X)
X = 0.
iprod([1,-1],[4,4],X)
X = 0.
iprod([1,2,-3],[4,-5,-6],X)
X = 12
iprod([1,2,3,4,5,6,7,8,9,10],[10,9,8,7,6,5,4,3,2,1],X)
X = 220

```

40 marks for friendster

8 test cases each worth 5 (run on database of friends listed at the end of this document)

```

friendster(b,e,X,5)
X = [b, a, e] ;
X = [b, c, a, e] ;
X = [b, d, a, e] ;
false.
friendster(b,e,X,4)
X = [b, a, e] ;
X = [b, c, a, e] ;

```

```
X = [b, d, a, e] ;
false.
friendster(b,e,X,3)
X = [b, a, e] ;
false.
friendster(b,e,X,2)
false.
friendster(e,b,X,4)
X = [e, a, b] ;
X = [e, a, c, b] ;
X = [e, a, d, b] ;
false.
friendster(a,i,X,10)
X = [a, e, g, i] ;
X = [a, e, g, h, j, i] ;
X = [a, e, g, j, i] ;
false.
friendster(a,k,X,10)
false.
friendster(a,e,X,5)
X = [a, e] ;
false.
```

friends.pl

```
friend(a,b).
friend(a,c).
friend(a,d).
friend(a,e).
```

```
friend(b,a).
friend(b,c).
friend(b,d).
```

```
friend(c,a).
friend(c,b).
```

```
friend(d,a).
friend(d,b).
```

```
friend(e,a).
friend(e,f).
friend(e,g).
```

```
friend(f,e).
```

```
friend(g,e).
friend(g,h).
friend(g,i).
friend(g,j).
```

```
friend(h,g).
friend(h,j).
```

friend(i,g).
friend(i,j).

friend(j,g).
friend(j,h).
friend(j,i).

friend(k,l).
friend(l,k).