Here are the baseline values I got running the naive implementations on the core i7s in the lab.

Rotate: Version = rotate() function:

Dim	64	128	256	512	1024	Mean
Baseline CPEs		3.1	4.2	6.7	10.4	22.6

Smooth: Version = smooth() function:

Dim	32	64	128	256	512	Mean
Baseline CPEs		72.2	72.9	73.1	73.1	73.7

I then ran some optimized versions of these routines to establish the standard for full credit. To get full credit for rotate you need to achieve a speedup of greater than 2.3. To get full credit for smooth you need a speedup of greater than 3.4.

In order to know what score you will receive for partial credit if you do not reach the full credit benchmarks I have included the Perl routines that will be used to assign you scores based on speedup figures.

```
sub rotate_score {
   my $s = $_[0];

   if ($s <= 1.0) {            # s <= 1.0
         return 0.0;
   }
   elsif ($s <= 2.0) {         # 1.0 < s <= 2.0
         return 40.0 * (($s-1.0) / (2.0-1.0));
   }
   elsif ($s <= 2.3) {         # 2.0 < s <= 2.3
         return 40.0 + 10.0 * (($s-2.0) / (2.3-2.0));
   }
   else {                      # s > 2.3
         return 50.0;
   }
}

#
# smooth_score - returns score for smooth as a function of speedup s
# (used by grade-perflab.pl)
#
sub smooth_score {
   my $s = $_[0];

   if ($s <= 1.0) {            # s <= 1.0
         return 0.0;
   }
   elsif ($s <= 2.5) {         # 1.0 < s <= 2.5
         return 40.0 * (($s-1.0) / (2.5-1.0));
   }
```

```
    elsif ($s <= 3.4) {        # 2.5 < s <= 3.4
        return 40.0 + 10.0 * (($s-2.5) / (3.4-2.5));
    }
    else {                     # s > 3.4
        return 50.0;
    }
}
```