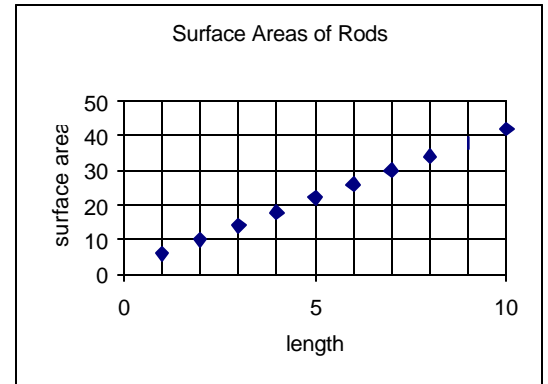


Curve Fitting – Some Examples

Example of Activity #6: Surface Areas of Cuisenaire Rods

The data:

| Rod Color | Long Dimension (cm) | Surface Area (cm ²) | Area Change |
|-----------|---------------------|---------------------------------|-------------|
| white | 1 | 6 | |
| red | 2 | 10 | 4 |
| lt green | 3 | 14 | 4 |
| purple | 4 | 18 | 4 |
| yellow | 5 | 22 | 4 |
| dk green | 6 | 26 | 4 |
| black | 7 | 30 | 4 |
| brown | 8 | 34 | 4 |
| blue | 9 | 38 | 4 |
| orange | 10 | 42 | 4 |



Let S_n = surface area of rod of length n

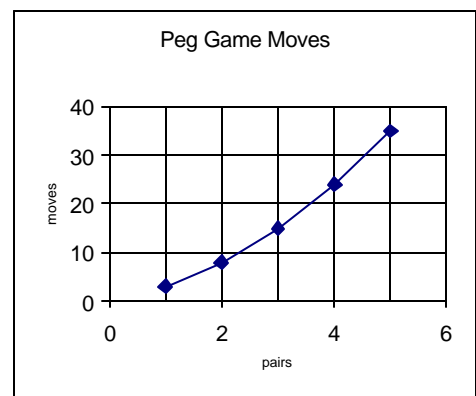
Difference Equation:

Functional Equation:

Example of the Peg Game:

The Data:

| n | M_n | Change in M_n | Change in Change |
|-----|-------|-----------------|------------------|
| 1 | 3 | | |
| 2 | 8 | 5 | |
| 3 | 15 | 7 | 2 |
| 4 | 24 | 9 | 2 |
| 5 | 35 | 11 | 2 |



Let M_n = number of moves for n pair of pegs

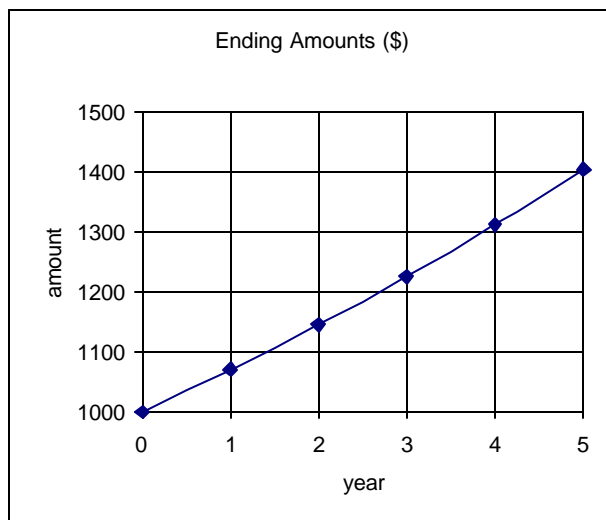
Difference Equation:

Functional Equation:

Example of Exercise 8 – Compound Interest

The Data:

| Year | Beginning Amount (\$) | Ending Amount (\$) | Year's Change (\$) | Year's Rate of Change | Year's Percent Change |
|-------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|
| 1 | 1000.00 | 1070.00 | 70.00 | 70.00 | 7 |
| 2 | 1070.00 | 1144.90 | 74.90 | 74.90 | 7 |
| 3 | 1144.90 | 1225.04 | 80.14 | 80.14 | 7 |
| 4 | 1225.04 | 1310.80 | 85.75 | 85.75 | 7 |
| 5 | 1310.80 | 1402.56 | 91.76 | 91.76 | 7 |



Let A_t = Amount after t years

Difference Equation:

Functional Equation: