Math 306 Solutions to assignment due Nov. 6th

Polya’s four-step plan to problem solving

**#(8) on p.121**

**Understand the problem** -“How long does it take a rumor spreading at a rate of 3 people/15 minutes to spread to 90,000?

**Devise a plan for solving it**

**Carry out your plan.**

1 + 3 + 9 + 27 + 81 + 243 + 729 + 2,187 + 6,561 + 19,683 + 59,049 + 177,147

Time 0, 15, 30, 45, 60, 75, 90, 105, 120, 135, 150, 165 min

**Look back to examine your solution.**

The sum does not equal or exceed 90,000 until the 12th term in the list so the tripling has happened 11 times which is 11 \* 15 = 165 min = 2 hrs 45 min

**(16) on p. 124 Values in Black given**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| + | 4 | 0 | 3 | 7 | 1 | 9 |
| 8 | 12 | 8 | 11 | 15 | 9 | 17 |
| 6 | 10 | 6 | 9 | 13 | 7 | 15 |
| 2 | 6 | 2 | 5 | 9 | 3 | 11 |
| 4 | 8 | 4 | 7 | 11 | 5 | 13 |
| 5 | 9 | 5 | 8 | 12 | 6 | 14 |

**(17) on p. 124**

Let *c* = # cookies

(1/2 *c*)3 = 4

(1/2 *c*)3 x 3= 4 x 3

(1/2 *c*) = 12

*c* = 24 cookies

**(18) on p. 124** – How many games must be played in single elimination checkers tournament to determine one winner

|  |  |
| --- | --- |
| Number of Players | Total number of games |
| 2 | 1 |
| 3 | 2 |
| 4 | 3 |
| 5 | 4 |
| : | : |
| 64 | **63** |

**(23) on p. 126**

If you bought 10 items for 0.10 each then the total cost would be $1.00.

If you buy p items for p cents then p x p = 225. So p = =15 with each of the 15 items costing $0.15.

**In Your Journal #3- p. 131**

The number of handshakes among 10 people

9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1 = 45

= 45

The number of handshakes among 15 people is = 105

The number of handshakes among *p* people is 