Sean Reilly

6.1: 8, 12, 16, 26, 28, 48, 52, 72 (7th edition)

8.

26 \* 25 \* 24 = 15,600

12.

2^7 – 2^0 = 127

16.

62500 + 3750 + 100 + 1 = 66351

26.

a) 10 \* 9 \* 8 \* 7 = 5040

b) 10 \* 10 \* 10 \*5 = 5000

c) The remaining digit must be different from 9 and can be at any of the 4 positions. Then there are 9 \* 4 = 36 such strings.

28.

10 \* 10 \* 10 \* 26 \* 26 \* 26 \* 2 = 35,152,000

48.

16 + 32 – 4 = 44

52.

38 + 23 – 7 = 54

72.

Basis: Let m = 2. Therefore P(2) is true because there are n1 ways to do first task and n2 ways to do the second task, then by definition there will be n1n2 ways to do the procedure, which is the product of 2 tasks.

Inductive: if P(m) is true, then so is P(m+1). In other words, if the product rule holds for m tasks, then it holds for m+1 tasks. So assume that P(m) is true for some m≥2; we’ll try to prove P(m+1). To that end suppose that we have m+1 tasks, and that task Tk can be performed in nk ways, here k=1,…,m+1. We’d like to show that the entire set of m+1 tasks can be performed in n1n2…nmnm+1 ways. By mathematical induction P(m) is true for all positive integers n(n>=2)