

# Math 189 Homework 1 answer key

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**Lovasz 2.2:** Carl's sense: if it matters who sits on each side of each board, but the boards are all alike, 720 different seatings divided by  $6 = 120$

If the boards are different but it doesn't matter who sits on which side of each board, 720 divided by  $2^3 = 8$  ways to assign white or black to each player. 720 divided by 8 is 90.

**Levin p. 67 1:**  $5 \cdot 3 \cdot 17 = 255$  outfits, multiplicative principle.

**2:** a.  $3+5 = 0$

b. 3 times 5 = 15

c.  $7 + (5 \text{ times } (4 \text{ plus } 3)) = 42$

**3:** if you are going to watch one movie from your collection, how many choices do you have?

if you are going to watch a comedy, then a horror movie, how many choices do you have?

**5:** 10 largest size for intersection, 0 smallest size for intersection, smallest size 15, largest 25

**6:**  $8 + 5 = 13$

**12abc:** a.  $8^5 = 32768$

b. 8 times 7 times 6 times 5 times 4 = 6720

c 64

**14:** There are 4 choices for the exponent on 7 (0 to 3) then 2 for the exponent on 3, then 5 for the exponent on 5, then three for the exponent on 7:  
 $4*2*5*3 = 120$