Assignment 5.4 - Jason Dorweiler
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Section 6.5: 6, 8, 12, 14 (7th edition)

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6. How many ways are there to select five unordered elements from a set with three elements when repetition is allowed?

There are r=5 slots and n=3 types to pick. The total number of ways is C((5+2),5) = 21

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8. How many different ways are there to choose a dozen donuts from the 21 varieties at a donut shop?

There are r=12 slots and n = 21 types to choose. The total number of ways is then C((12+20),12) = 25792840. The same problem with out repition will have C(21,12) = 293930 ways.

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12. How many different combinations of pennies, nickles, dimes, quarters, and half dollars can a piggy bank contain if it has 20 coins in it?
There are r=20 slots and n=5 types to pick. The total number of ways is then C(24,20) = 10626.

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14. How many solutions are there to the equation
$x_1 + x_2 + x_3 + x_4 = 17$ where
x_1, x_2, x_3, x_4 are nonnegative integers? are nonnegative integers?
The number of slots is r=17 with n=4 types to choose. That makes the total C(20,17) = 1140