CS1800 Fall 2026

Distinguishability & overcounting: How many ways... ?

Where to start...?

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	Repetition NOT OK	Repetition OK
Order Matters		
Order Doesn't Matter		

Where to start...?

	Repetition NOT OK	Repetition OK
Order Matters	*1*	*2*
Order Doesn't Matter	*3*	*4*

There are 25 players on the Red Sox roster. How many ways to choose 9 starters, if anyone could play any position?

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There are 25 players on the Red Sox roster. How many ways to choose 9 starters, if anyone could play any position?

There are 25 players on the Red Sox roster. How many ways to choose someone for first, second, and third-base?

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There are 25 players on the Red Sox roster. How many ways to choose someone for first, second, and third-base?

You have 5 pink socks and 8 orange socks. How many ways to pick two socks?

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How many ways to assign 4 of the 6 CS1800/1802 instructors to 4 different classrooms?

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Order Doesn't Matter	*3*	*4*

How many ways to assign 4 of the 6 CS1800/1802 instructors to 4 different classrooms?

How many ways to pick 4 of the 6 CS1800/1802 instructors to get a raise?

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There are 52 cards in a deck. 13 values (Ace, 2, 3, 4, ..., 10, Jack, Queen, King) each in four suits (♣ ♦ ♥ ♠)

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How many five-card hands have a pair (2 cards the same value; no other pairs/matching)?

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How many five-card hands have a pair (2 cards the same value; no other pairs/matching)?

There are 25 Husky stuffies and 3 shelves at the bookstore.
How many ways to arrange the stuffies on the shelves?



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There are 25 Husky stuffies and 3 shelves at the bookstore.
How many ways to arrange the stuffies
on the shelves?



How many ways to split up 10 students into Sec1 with 5 people and Sec 2 with 5 people?



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Order Matters	1	2
Order Doesn't Matter	3	4

How many ways to split up 10 students into Sec1 with 5 people and Sec 2 with 5 people?



How many ways to split up 10 students into two groups of 5?

don’t answer yet; this one is different!

How many ways to arrange the letters *N O R T H*?



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Order Doesn't Matter	*3*	*4*

How many ways to arrange the letters *N O R T H*?



How many ways to arrange the letters *E A S T E R N*?



don’t answer yet; this one is different!