2.3 Practice: Applications of Collections

2.3 Practice Problem 1.a

0 points possible (ungraded)

Let's say you have a class of 15 students, eight of them girls and seven boys.

You want to choose a committee of four students, with two girls and two boys. How many ways can you do this? *Choose the best answer.*

- $\binom{8}{2} + \binom{7}{2}$
- $\binom{8}{2} \times \binom{7}{2}$
- $8 \times 7 + 7 \times 6$
- $8 \times 7 \times 7 \times 6$

Submit

✔ Correct

2.3 Practice Problem 1.b

0 points possible (ungraded)

Let's say you have a class of 15 students, eight of them girls and seven boys.

Suppose we want to choose a committee of four from among the 15 students, but this time your constraint is that you don't want the committee to consist of all boys or all girls. Now how many ways can you do this? *Choose the best answer.*

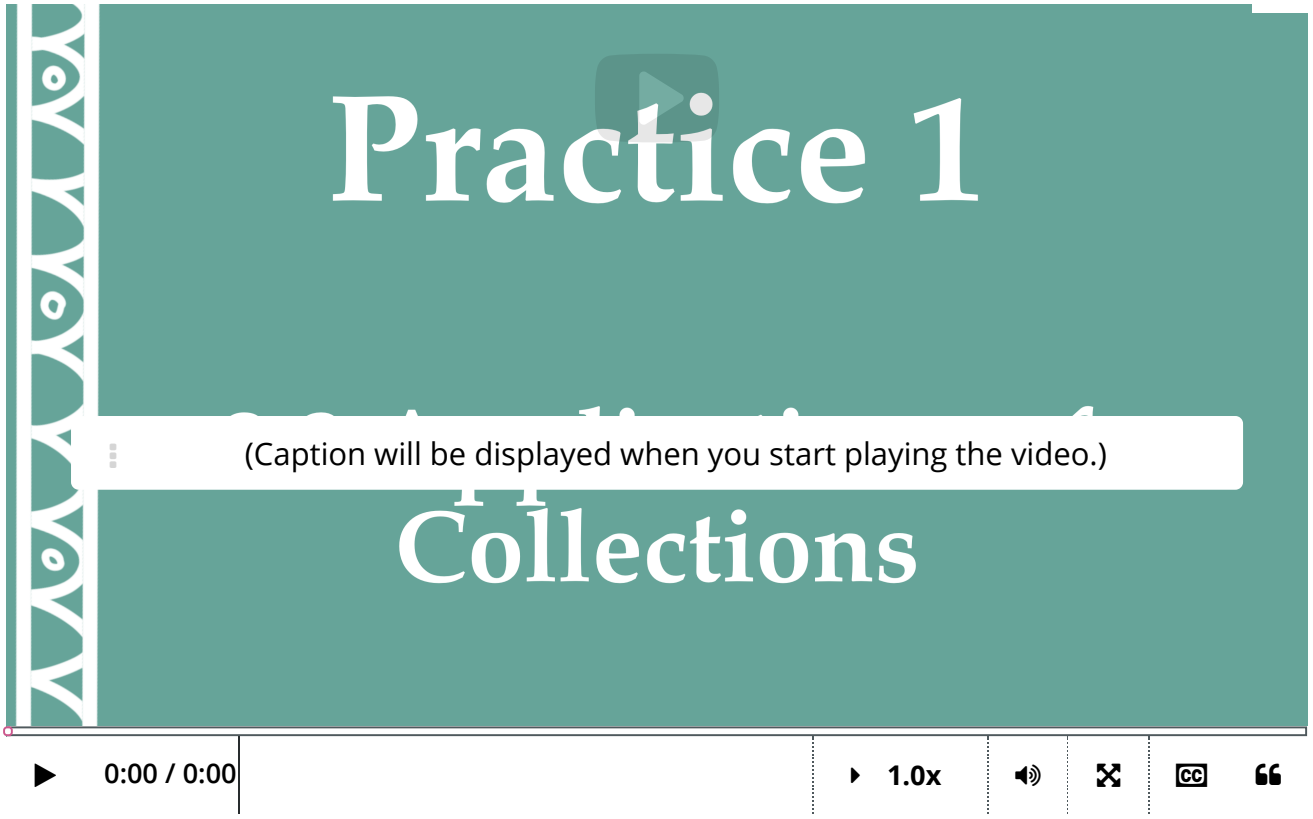
- $\binom{8}{3} \times 7 + \binom{8}{2} \times 7 + \binom{8}{1} \times 7$
- $\binom{8}{3} \times \binom{7}{1} \times \binom{8}{1} \times \binom{7}{3}$
- ● $\binom{15}{4} - \binom{8}{4} - \binom{7}{4}$
- $\binom{15}{4} - \binom{8}{4} \times \binom{7}{4}$

✔

Submit

✔ Correct

2.3 Office Hours for Practice 1



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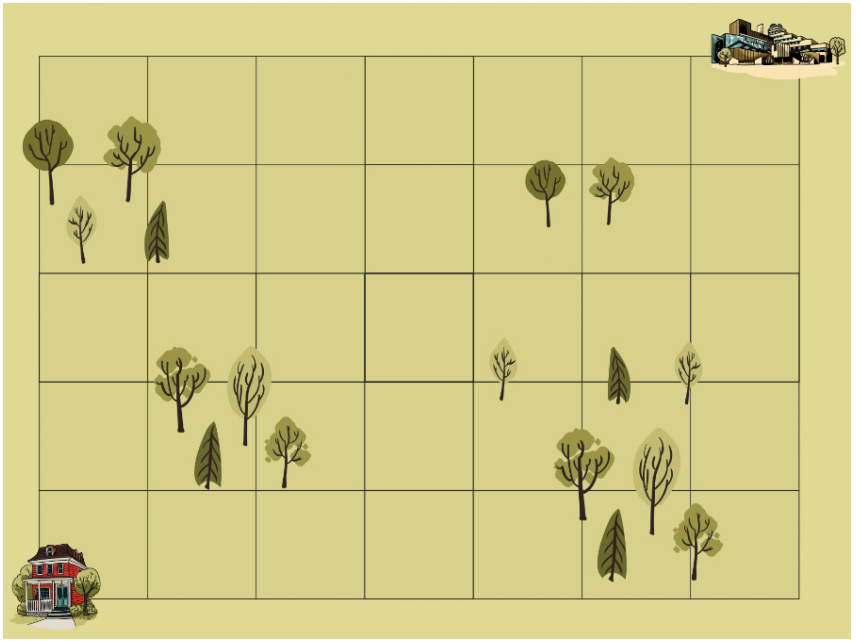
Introduction to 2.3 Practice Problem 2

The questions in 2.3 Practice Problem 2 ask you to analyze two images: a 7-by-5 grid with two labeled coordinates and a 7-by-5 grid with three labeled coordinates. The images should appear within Practice Problem 2. However, if, for some reason, the images do not display, you can download them using the following direct links:

- For 2.a: Download Grid Version 1 (Two Coordinates)
- For 2.b and 2.c: Download Grid Version 2 (Three Coordinates)

2.3 Practice Problem 2.a

0 points possible (ungraded)



In the 7-by-5 block grid shown, how many paths are there from your home in the southwest corner to the Science Center in the northeast corner? *Choose the best answer.*

- (selected) $\binom{12}{5}$
- $\binom{12}{5} - \binom{7}{5}$
- $\binom{12}{7} + \binom{7}{5}$
- $\binom{12}{5} + \binom{12}{7}$

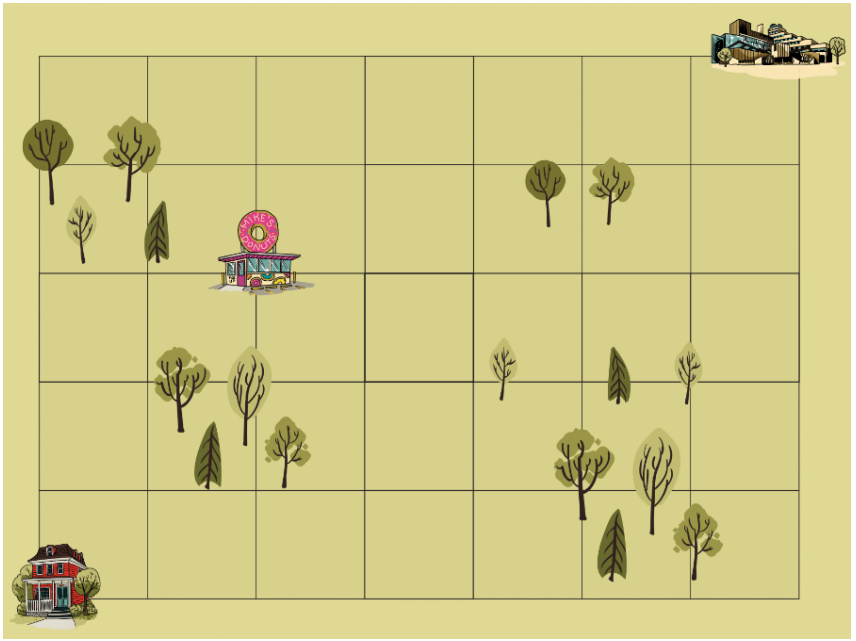
✔

Submit

✔ Correct

2.3 Practice Problem 2.b

0 points possible (ungraded)



In the 7-by-5 block grid shown, how many paths from your home in the southwest corner to the Science Center in the northeast corner pass by Mike's (marked on the grid at the position of two blocks east and three blocks north)? *Choose the best answer.*

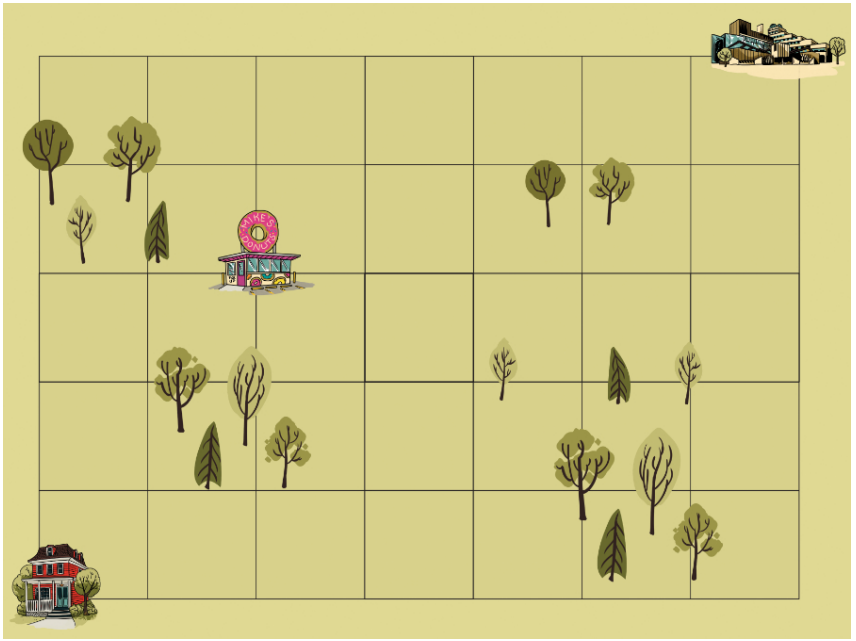
- $\binom{5}{2} + \binom{7}{2}$
- $\binom{6}{2} \times \binom{10}{2}$
- $\binom{12}{5} - \binom{5}{2}$
- $\binom{5}{2} \times \binom{7}{2}$ ✔

Submit

✔ Correct

2.3 Practice Problem 2.c

0 points possible (ungraded)



Finally, suppose that you're on a diet, and you must at all costs avoid Mike's. In the 7-by-5 block grid shown, how many paths from your home in the southwest corner to the Science Center in the northeast corner do NOT pass by Mike's (marked on the grid at the position of two blocks east and three blocks north)? *Choose the best answer.*

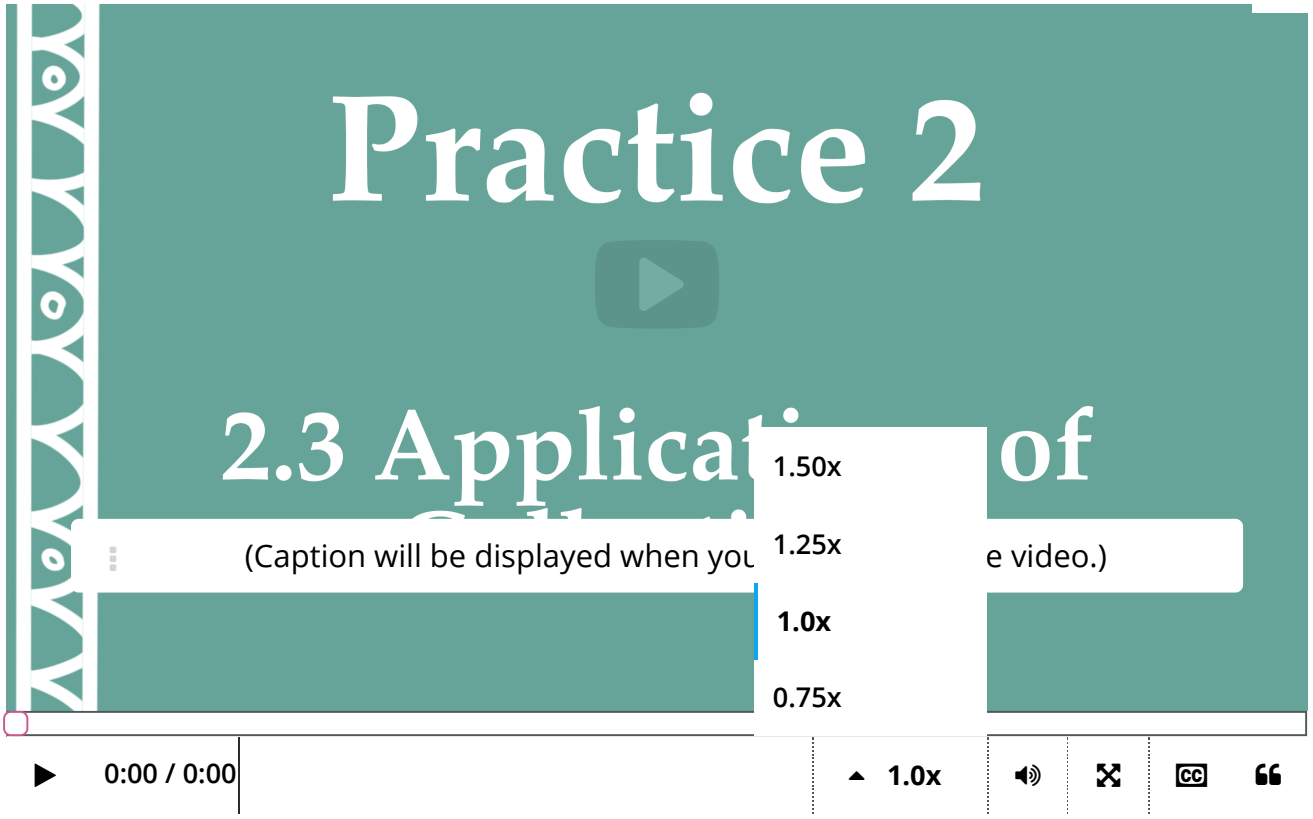
- $\binom{11}{4}$
- $\binom{12}{4}$
- $\binom{12}{5} - \binom{5}{2} \times \binom{7}{2}$
- $\binom{12}{5} - \binom{5}{2} - \binom{7}{2}$

✔

Submit

✔ Correct

2.3 Office Hours for Practice 2



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