

Three out of Five!

Here are several problems that all seem to be about “three out of five.” But each problem may need a different method to solve it, and each may have a different answer. Try as many as you can! A strategy that may help you is “solve a simpler problem.” For example, in #1, how many passwords can you make that are one letter long? Two letters long? Show your work neatly in a final copy! Explain your thinking carefully! If you do more than one problem, try to explain how they’re different.

1. Passwords

You have to make a password that is three letters long using A, E, I, O or U. You can use a letter more than once. Possible passwords include: AAE, AEA, or UIE. How many different passwords are possible?

2. Races

Five children are running in a race. Let's say there will be no ties. In how many different ways can they come in first, second and third?

3. Videos

You want to rent five videos. Your parents say you're only allowed to rent three. How many different ways can you choose the three you want to get?

4. Cookies

There are five trays of cookies at the party, each with a different type of cookie. You want to eat three cookies. How many different selections of three cookies can you put on your plate?

5. Dice

You're rolling five dice. What's the probability that exactly three of them will show the same number? (For example, three twos, or three sixes.) This problem may be a bit trickier than the others! Can you do some experimenting to get an estimate of the probability?

6. Class Report

There are five problems above this one. What percent of your class worked on at least three of those five problems?

7. Have fun!