1	Jake has a three-car garage. He also has a Lamborghini, a Ferrari, and a Bugatti Veyron. In how many orders can he park his cars in his garage?
2	I flip a fair, two-sided coin 500 times. How many times should I expect a result of heads?
3	The probability of drawing an ace from a deck of cards was $\frac{1}{4}$. Since 4 aces were added to the deck, the chances of drawing an ace are now $\frac{3}{8}$. How many cards are in the deck now?
4	$(xy \times)$ is defined as $x \times y$; $(xy-)$ is defined as $x - y$; $(xy+)$ is defined as $x + y$; $(xy \div)$ is defined as $x \div y$. If $a = 30, b = 28, c = 26, d = 8, e = 4$, and $f = -6$, evaluate: $\quad a\ b\ c\ -\ +\ d\ e\ \div\ \times\ f\ +$
5	Find the 50th digit after the decimal place in the repeating decimal 7.461538461538 …
6	Arnie, Shawn, Ruofan, and Andy live in a town. Each of them has one job: mafia, inspector, baker, and doctor. Each of them holds one card: Ace, 10, 3, and Jack. • Arnie is not the doctor. • Ruofan is not holding the Ace, nor is he holding the 10. • The baker is holding the 3. • Andy is holding the Jack. • The inspector is holding an Ace. • Shawn is not holding a 10. • The doctor is not holding a 10. Which of them is the mafia, and which card is he holding?
7	Kevin, Austin, Andrew, and Pei are lost in a forest. Kevin wants to go north, Austin wants to go east, Andrew south, and Pei west. To decide on a direction, each person randomly votes for one of the four individuals to be the leader and decide their course. But in order to be leader, an individual must receive more than half the votes. To the north are poisonous marshes; to the east are human-eating bears; to the south is Lord Voldemort. After holding one election, what is the probability that the group successfully elects a leader and goes west toward safety?
8	The probability of event A happening is $^r/_3$. The probability of event B happening is $^r/_5$. The probability of event C happening is $^1/_{11}$. Events A, B, and C are independent events. In terms of r, what is the probability of A and B occurring, but not C?
9	Variables x and y each take one of two values: *true* or *false*. The operation x && y evaluates to *true* if both x and y are *true*; otherwise, it evaluates to *false*. The operation x || y evaluates to *true* if either or both x and y are *true*, and *false* otherwise. The operation $x\text{^}y$ evaluates to *true* if either x or y, but not both, are *true*, and *false* otherwise. Given $a = true$ and $b = false$, find the value of $[(a$ && $b)$ || $(b\text{^}b)]$ || $(a\text{^}b)$.
10	16 members of Newport Math Club are planning a math competition. Each member needs to be given a single job. There need to be 5 graders, 2 runners, 1 photographer, 1 scorekeeper, and 7 proctors. In how many distinct ways can the jobs be assigned?