



# Mental Math 7th/8th

## Person 1

1	When rolling two six-sided dice, what is the probability of obtaining a sum of five?
2	Farmer John has three fields of wheat. The first one is 30 acres, the second is 50 acres, and the third is 100 acres. In one day, Farmer John can harvest three acres of wheat. How many days will it take for him to harvest the wheat from all of his fields?
3	A square has an area of 196. What is its perimeter?
4	Amy is playing a video game. The first level takes her one minute to complete, the second level takes her two minutes to complete, the third level takes her three minutes to complete, and so on. After 20 minutes have passed, which level is she playing?
5	A box of floss has 30 yards of floss. Sylvia uses 18 inches of floss each day. How many days will it take for her to use the entire box of floss?

## Person 2

1	What is the area of an equilateral triangle with side length two?
2	Tickets to the show cost six dollars. One night, the total ticket revenue was 1248 dollars. How many tickets were sold that night?
3	Six points, no three of which are co-linear, are drawn on a sheet of paper. Each point is connected to each of the other points. In total, how many lines are drawn to connect the points?
4	Define a function $f$ of $x$ to be $x$ squared minus two $x$ minus three. What is the value of $f$ of four?
5	Evaluate: the square of the quantity eight plus three.

## Person 3

1	Find the next term of the following sequence: 56, 47, 38, 29
2	Joanna has six different colors of hair ties. She needs to pick two of them for her hair. In how many ways can she pick two hair ties?
3	If one diagonal of a rhombus is 18 inches long and the other diagonal is 24 inches long, what is the perimeter of the rhombus?

4	Express the base ten number 18 in binary.
5	A trapezoid has bases of lengths 7 and 10 and an area of 51. What is its height?

### Person 4

1	Eight people attend a Christmas party. If everyone at the party gives everyone else at the party a gift, how many gifts are given?
2	A bus going to Seattle starts out with no passengers. At the first stop, five passengers get on. At the second stop, ten passengers get on. At the third stop, six passengers get on and eight passengers leave. At the fourth stop, two passengers get on and seven passengers leave. At this point, how many passengers are on the bus?
3	Penelope walks two miles per hour to school in the morning and four miles per hour home in the afternoon. Her school is two miles away from her house. What is her average speed, in miles per hour, for the entire trip?
4	The Fibonacci sequence begins 1, 1, 2, 3, 5, 8, .... What is the eighth term in the sequence?
5	What is the surface area of a sphere with radius two?