

Group F

Sample Questions

- 1) Marcus is a checkers champion. He's played 165 games; his ratio of wins to draws to losses is 8 : 5 : 2. How many games has he won?



- 2) How many times is $9^{20} \times 27^{40}$ greater than 81×3^{150} ?
- 3) Two positive numbers are written on the board. Bill and Greg take turns going to the board, calculating the sum of the two largest numbers written on it, and writing the result on the board. Bill makes the first move. On his second turn, Bill wrote number 9 on the board. What is the sum of all the numbers on the board after Greg's second move?
- 4) Noah sails the same number of nautical miles every day. On Monday, he covered three-quarters of the route from Dover to Calais. On Tuesday, he finished that leg and covered half of the route from Calais to Le Havre. On Wednesday, he finished that leg and covered a third of the route from Le Havre to Brest. The Le Havre–Brest leg is 240 nautical miles. How many nautical miles is the Dover–Calais leg?

- 5) After seven washes, the length, width, and height of the bar of soap were reduced by half. How many more washes will the remaining piece last? (The same amount of soap is used for each wash.)



- 6) Liam and Sophie collected a total of 60 seashells. After Liam gave 20% of his seashells to Sophie, Sophie had twice as many as Liam. How many seashells did Liam have originally?
- 7) How many even four-digit numbers have exactly one digit 1 in their notation?