UNIT 10 EXERCISES 1-5

COMBINATIONS

2018A

3. How many ways can a student schedule 3 mathematics courses—algebra, geometry, and number theory—in a 6-period day if no two mathematics courses can be taken in consecutive periods? (What courses the student takes during the other 3 periods is of no concern here.)

(A) 3 **(B)** 6 **(C)** 12 **(D)** 18 **(E)** 24

2008B

5. A class collects \$50 to buy flowers for a classmate who is in the hospital. Roses cost \$3 each, and carnations cost \$2 each. No other flowers are to be used. How many different bouquets could be purchased for exactly \$50?

(A) 1 **(B)** 7 **(C)** 9 **(D)** 16 **(E)** 17

2017A

5. At a gathering of 30 people, there are 20 people who all know each other and 10 people who know no one. People who know each other hug, and people who do not know each other shake hands. How many handshakes occur?

(A) 240 **(B)** 245 **(C)** 290 **(D)** 480 **(E)** 490

2018B

5. How many subsets of $\{2, 3, 4, 5, 6, 7, 8, 9\}$ contain at least one prime number?

(A) 128 **(B)** 192 **(C)** 224 **(D)** 240 **(E)** 256