

3) A special lottery is to be held to select the student who will live in the only deluxe room in a dormitory. There are 100 seniors, 150 juniors, and 200 sophomores who applied. Each senior's name is placed in the lottery 3 times; each junior's name, 2 times; and each sophomore's name, 1 time. What is the probability that a senior's name will be chosen?

- (A)  $\frac{1}{8}$
- (B)  $\frac{2}{9}$
- (C)  $\frac{2}{7}$
- (D)  $\frac{3}{8}$
- (E)  $\frac{1}{2}$

4) The projected sales volume of a video game cartridge is given by the function

$s(p) = \frac{3000}{2p + a}$ , where  $s$  is the number of cartridges sold, in thousands;  $p$  is the price per cartridge, in dollars; and  $a$  is a constant. If according to the projections, 100,000 cartridges sold at \$10 per cartridge, how many cartridges will be sold at \$20 per cartridge?

- (A) 20,000
- (B) 50,000
- (C) 60,000
- (D) 150,000
- (E) 200,000