1

If x is positive, which of the following could be correct ordering of $\frac{1}{x}$, $2x$, and x^2?

(I) $x^2<2x<\frac{1}{x}$
(II) $x^2<\frac{1}{x}<2x$
(III) $2x<x^2<\frac{1}{x}$

(a) none
(b) I only
(c) III only
(d) I and II
(e) I, II and III

2

In a room filled with 7 people, 4 people have exactly 1 sibling in the room and 3 people have exactly 2 siblings in the room. If two individuals are selected from the room at random, what is the probability that those two individuals are NOT siblings?

A. 5/21
B. 3/7
C. 4/7
D. 5/7
E. 16/21

3

At a certain hospital, 75% of the interns receive fewer than 6 hours of sleep and report feeling tired during their shifts. At the same time, 70% of the interns who receive 6 or more hours of sleep report no feelings of tiredness. If 80% of the interns receive fewer than 6 hours of sleep, what percent of the interns report no feelings of tiredness during their shifts?

A. 6
B. 14
C. 19
D. 20
E. 81

4

It takes 6 days for 3 women and 2 men working together to complete a work. 3 men would do the same work 5 days sooner than 9 women. How many times does the output of a man exceed that of a woman?

A. 3 times
B. 4 times
C. 5 times
D. 6 times
E. 7 times

5

How many positive integers less than 10,000 are there in which the sum of the digits equals 5?

(A) 31
(B) 51
(C) 56
(D) 62
(E) 93