

Group Quiz A

Names: \_\_\_\_\_  
\_\_\_\_\_

Fill the box of your choice with BLACK INK until you hit the correct answer.

1 box: 4 points; 2 boxes: 2 points; 3 boxes: 1 point.

The highest score available is 12 points.

1. A broken typewriter is missing the B-key and the C-key. How many arbitrary 4-letter words can it produce?

A.  $24^4$       B.  $25^4$       C.  $24 \cdot 23 \cdot 22 \cdot 21$       D.  $\binom{24}{4}$ .

 A B C D

2. Which of the following is false?

A.  $\binom{15}{4} = \binom{15}{11}$ .

B.  $C(10, 6) = \frac{P(10, 6)}{6!}$ .

C.  $P(9, 9) > P(9, 8)$ .

D.  $C(9, 9) > C(9, 8)$ .

 A B C D

3. There are 12 male workers and 4 female workers. How many ways are there to assemble a 3-member team with one male and two female workers?

A. 144      B. 72      C. 48      D. 20.

 A B C D

4. A car company sold 62,148 of its most popular car, Model X, in 2017 in the United States. Which of the following is true based on this information?

A. The company sold at least 1243 Model X's in at least one state.

B. The company sold at least 1242 Model X's in at least one state.

C. The company sold at least 1243 Model X's in several states.

D. The company sold at least 1242 Model X's in several states.

 A B C D

Group Quiz B

Names: \_\_\_\_\_  
\_\_\_\_\_

Fill the box of your choice with BLACK INK until you hit the correct answer.

1 box: 4 points; 2 boxes: 2 points; 3 boxes: 1 point.

The highest score available is 12 points.

1. What is the probability that a five-card poker hand contains exactly two spade cards?

A.  $\frac{C(13, 2)}{C(52, 5)}$       B.  $\frac{C(39, 3)}{C(52, 5)}$       C.  $\frac{C(13, 2) \cdot C(39, 3)}{C(52, 5)}$       D.  $\frac{1}{C(52, 5)}$

 A B C D

2. 1500 members in a club entered a random drawing. What is the probability that the president and the secretary win the first two prizes?

A.  $\frac{2}{P(1500, 2)}$       B.  $\frac{2}{C(1500, 2)}$       C.  $\frac{1}{1500 \cdot 1499}$       D.  $\frac{1}{1500 \cdot 1500}$

 A B C D

3. Assume that the probability a child is a boy is 0.51 and that the sexes of children born into a family are independent. What is the probability that a family of four children has 3 boys?

A.  $\binom{4}{3} (0.51)^3$       B.  $\binom{4}{3} (0.51)^3 (0.49)$       C.  $\binom{4}{3}$       D.  $\frac{1}{4}$

 A B C D

4. Of University X's incoming class of 2021, 60% are female and 40% are male. Of the female students, 50% choose to take math in freshman year. Of the male students, 75% take math in freshman year. If a random student takes math in the freshman year, which of the following is true?

- A. The student is more likely to be male.  
B. The student is more likely to be female.  
C. The student is equally likely to be male or female.  
D. The information is insufficient for us to determine.

 A B C D