55. What is the period of the function $f(x) = \csc(4x)$?

A. π

B. 2π

C. 4π

D. $\frac{\pi}{4}$

E. $\frac{\pi}{2}$

56. At the school carnival, Mike will play a game in which he will toss a penny, a nickel, and a dime at the same time. He will be awarded 3 points for each coin that lands with heads faceup. Let the random variable x represent the total number of points awarded on any toss of the coins. What is the expected value of x ?

F. 1

G. $\frac{3}{2}$

H. $\frac{9}{2}$

J. 6

K. 9

57. For what positive real value of k, if any, is the determinant of the matrix $\begin{bmatrix} k & 4 \\ 3 & k \end{bmatrix}$ equal to k ?

(Note: The determinant of matrix $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$ equals $ad - bc$.)

A. 3

B. 4

C. 12

D. $\sqrt{12}$

E. There is no such value of k.

58. Given a positive integer n such that $i^n = 1$, which of the following statements about n must be true?

(Note: $i^2 = -1$)

F. When n is divided by 4, the remainder is 0.
G. When n is divided by 4, the remainder is 1.
H. When n is divided by 4, the remainder is 2.
J. When n is divided by 4, the remainder is 3.
K. Cannot be determined from the given information

59. For $-\frac{\pi}{2} \leq \theta \leq \frac{\pi}{2}$, $|\sin\theta| \geq 1$ is true for all and only the values of θ in which of the following sets?

A. $\left\{-\frac{\pi}{2}, \frac{\pi}{2}\right\}$

B. $\left\{\frac{\pi}{2}\right\}$

C. $\left\{\theta \mid -\frac{\pi}{2} < \theta < \frac{\pi}{2}\right\}$

D. $\left\{\theta \mid -\frac{\pi}{2} \leq \theta \leq \frac{\pi}{2}\right\}$

E. The empty set

60. Ray $\overrightarrow{PK}$ bisects $\angle LPM$, the measure of $\angle LPM$ is $11x°$, and the measure of $\angle LPK$ is $(4x + 18)°$. What is the measure of $\angle KPM$?

F. 12°

G. $28\frac{2}{7}°$

H. 42°

J. $61\frac{1}{5}°$

K. 66°

END OF TEST 2

STOP! DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.

DO NOT RETURN TO THE PREVIOUS TEST.