1. Suppose a random variable X is uniformly distributed between 4 and 8. Find $P(6< X <7)$.

A. $P(6 < X < 7) = 0.25$.

B. $P(6 < X < 7) = 0.26$.

C. $P(6 < X < 7) = 0.29$.

D. $P(6 < X < 7) = 0.18$.

E. $P(6 < X < 7) = 0.23$.

F. $P(6 < X < 7) = 0.21$.

G. $P(6 < X < 7) = 0.34$.

H. $P(6 < X < 7) = 0.24$.

2. On a long, lonely stretch of straight highway in Nevada, motor vehicle accidents occur with equal probability between mile markers at 27 miles and 44 miles. Let X be the distance as measured by the mile markers at which an accident occurs. Find $P(X >32)$, that is, the probability that the next accident will occur between mile marker 32 and mile marker 44.

A. The probability that the next accident will occur between mile markers 32 and 44 is 0.746.

B. The probability that the next accident will occur between mile markers 32 and 44 is 0.656.

C. The probability that the next accident will occur between mile markers 32 and 44 is 0.696.

D. The probability that the next accident will occur between mile markers 32 and 44 is 0.736.

E. The probability that the next accident will occur between mile markers 32 and 44 is 0.706.

F. The probability that the next accident will occur between mile markers 32 and 44 is 0.776.

G. The probability that the next accident will occur between mile markers 32 and 44 is 0.626.

H. The probability that the next accident will occur between mile markers 32 and 44 is 0.756.

3. Suppose a random variable X is uniformly distributed between 3 and 6. What is the probabiility density function $f(x)$ of X?

A. The probability density function is $f(x) = \frac{x-3}{3}$ on the interval $5 \leq x \leq 4$.

B. The probability density function is $f(x) = \frac{x-3}{3}$ on the interval $4 \leq x \leq 5$.

C. The probability density function is $f(x) = \frac{x-3}{1}$ on the interval $4 \leq x \leq 5$.

D. The probability density function is $f(x) = \frac{1}{3}$ on the interval $3 \leq x \leq 6$.

E. The probability density function is $f(x) = \frac{1}{3}$ on the interval $6 \leq x \leq 3$.

F. The probability density function is $f(x) = \frac{1}{1}$ on the interval $6 \leq x \leq 3$.

G. The probability density function is $f(x) = \frac{x-3}{1}$ on the interval $5 \leq x \leq 4$.

H. The probability density function is $f(x) = \frac{1}{1}$ on the interval $3 \leq x \leq 6$.

4. Suppose a random variable X is uniformly distributed between 4 and 6. Find $P(X \geq 5)$.

A. $P(X \geq 5) = 0.51$.

B. $P(X \geq 5) = 0.47$.

C. $P(X \geq 5) = 0.5$.

D. $P(X \geq 5) = 0.56$.

E. $P(X \geq 5) = 0.49$.

F. $P(X \geq 5) = 0.46$.

G. $P(X \geq 5) = 0.42$.

H. $P(X \geq 5) = 0.45$.

5. Suppose a random variable X is uniformly distributed between 1 and 6. Find the standard deviation σ of this distribution.

A. $\sigma = 10.443$.

B. $\sigma = -7.557$.

C. $\sigma = -4.557$.

D. $\sigma = 6.443$.

E. $\sigma = 7.443$.

F. $\sigma = -0.557$.

G. $\sigma = 8.443$.

H. $\sigma = 1.443$.

6. On a long, lonely stretch of straight highway in Nevada, motor vehicle accidents occur with equal probability between mile markers at 24 and 40. Let X be the distance as measured by the mile markers at which an accident occurs. What is the average mile-marker location at which accidents occur. What is the cumulative distribution function $F(x) = P(X \leq x)$ of the distance X at which accidents occur on this stretch of road?

A. The cumulative distribution function is $F(x) = \frac{x-24}{16}$ on the interval $24 \leq x \leq 40$.

B. The cumulative distribution function is $F(x) = \frac{x-24}{16}$ on the interval $36 \leq x \leq 35$.

C. The cumulative distribution function is $F(x) = \frac{x-24}{21}$ on the interval $24 \leq x \leq 40$.

D. The cumulative distribution function is $F(x) = \frac{1}{21}$ on the interval $35 \leq x \leq 36$.

E. The cumulative distribution function is $F(x) = \frac{1}{16}$ on the interval $35 \leq x \leq 36$.

F. The cumulative distribution function is $F(x) = \frac{1}{16}$ on the interval $40 \leq x \leq 24$.

G. The cumulative distribution function is $F(x) = \frac{1}{21}$ on the interval $40 \leq x \leq 24$.

H. The cumulative distribution function is $F(x) = \frac{x-24}{21}$ on the interval $36 \leq x \leq 35$.

7. A geyser in Jellystone National Park named "Old Fateful" goes off at regular intervals. The time between consecutive eruptions X is uniformly distributed between 48 and 121 minutes. Find $P(X > 118)$, that is, the probability that the time between two consecutive eruptions is greater than 118 minutes.

A. The probability that the time between two consecutive eruptions is greater than 118 minutes is 0.051.

B. The probability that the time between two consecutive eruptions is greater than 118 minutes is 0.001.

C. The probability that the time between two consecutive eruptions is greater than 118 minutes is -0.009.

D. The probability that the time between two consecutive eruptions is greater than 118 minutes is -0.049.

E. The probability that the time between two consecutive eruptions is greater than 118 minutes is 0.021.

F. The probability that the time between two consecutive eruptions is greater than 118 minutes is 0.041.

G. The probability that the time between two consecutive eruptions is greater than 118 minutes is -0.029.

H. The probability that the time between two consecutive eruptions is greater than 118 minutes is 0.121.

8. Suppose a random variable X is uniformly distributed between 0 and 7. Find $P(X \leq 6)$.

A. $P(X \leq 6) = 0.927$.

B. $P(X \leq 6) = 0.887$.

C. $P(X \leq 6) = 0.827$.

D. $P(X \leq 6) = 0.797$.

E. $P(X \leq 6) = 0.787$.

F. $P(X \leq 6) = 0.777$.

G. $P(X \leq 6) = 0.937$.

H. $P(X \leq 6) = 0.857$.