

Name:

Partners:

PreCalculus

Date:

Review 6 Version A

[A] Circle whether each statement is true or false.

T F 1. $G \cap \emptyset = G$

T F 2. $(A \cup B)' = A' \cap B'$

T F 3. Die rolls are dependent events.

T F 4. "Odd" and "less than 4" are mutually exclusive.

T F 5. If $|C| = 20$, $|D| = 8$, and $|C \cup D| = 25$, then $|C \cap D| = 3$.

T F 6. If drawing a heart will win \$2, the expected value is 50¢.

T F 7. The probability of a card being red given it is hearts is 50%.

T F 8. The number of possible arrangements of 3 pennies, a dime, and 5 nickels is $\binom{9}{3} \binom{6}{1} \binom{5}{5}$.

[B] For each problem, state whether or not the denominator given is correct. If it is not, state exactly which items have been removed from the sample space to decrease it.

1. There are 52 cards in a deck. The probability of the second card being an ace is $\frac{4}{52}$.

2. Three crayons are missing from a 24-crayon box. The probability of grabbing the red crayon is $\frac{1}{24}$.

3. Three crayons are missing from a 24-crayon box, but the red crayon is not missing. The odds of grabbing the red crayon is $\frac{1}{24}$.

4. There are 10 marbles in a jar, one of which is black. The probability of pulling out the black one is $\frac{1}{10}$, given Alex later pulls out an orange one.

5. There are eight possible outcomes in flipping three coins, such as HHT and HTH. The probability that all of the coins are heads, given at least one is heads, is $\frac{1}{8}$.

[C] Tyler draws four cards. For each statement, state the complement. Then state which probability would be easier to calculate, the original statement or the complement.

1. All of the cards are hearts.

2. None of the cards are spades.

3. At least one of the cards is a king.

4. Fewer than 4 of the cards are diamonds.

[D] Ryan rolls 4 four-sided dice. Calculate the probability of each of the following. Use fractions only, and do not reduce.

1. What is the probability that exactly three of the dice land on "4"?

2. What is the probability that at least three of the dice land on "4"?

[E] A randomly ordered playlist consists of 30 rock songs, 20 country songs, and 10 rap songs. 12 of the rock songs, 9 of the country songs, and 3 of the rap songs are done by female artists. Calculate the following probabilities. Use fractions only, and do not reduce.

1. The last song is country.

2. The first song is rock or a female artist.

3. The first song is a female artist, given it is rock.

4. The first two artists are not the same sex.

5. At least one of the first two songs is rap.

6. Exactly one of the first three songs is country.

[F] Do the following to organize your group's reviews.

1. Make sure your name and your partners' names are at the top of your review the first day.

2. Staple the reviews in order, all facing the same way. Put the staple in the very top left corner if everyone is finished or if the review is due; otherwise put the staple in the top right corner.

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Review 6 Version B

[A] Circle whether each statement is true or false.

T F 1. $G \cap \emptyset = G$

T F 2. $(A \cup B)' = A' \cap B'$

T F 3. Die rolls are dependent events.

T F 4. "Odd" and "less than 4" are mutually exclusive.

T F 5. If $|C| = 20$, $|D| = 8$, and $|C \cup D| = 25$, then $|C \cap D| = 3$.

T F 6. If drawing a heart will win \$2, the expected value is 50¢.

T F 7. The probability of a card being red given it is hearts is 50%.

T F 8. The number of possible arrangements of 3 pennies, a dime, and 5 nickels is $\binom{9}{3} \binom{6}{1} \binom{5}{5}$.

[B] For each problem, state whether or not the denominator given is correct. If it is not, state exactly which items have been removed from the sample space to decrease it.

1. There are 52 cards in a deck. The probability of the second card being an ace is $\frac{4}{52}$.

2. Three crayons are missing from a 24-crayon box. The probability of grabbing the red crayon is $\frac{1}{24}$.

3. Three crayons are missing from a 24-crayon box, but the red crayon is not missing. The odds of grabbing the red crayon is $\frac{1}{24}$.

4. There are 10 marbles in a jar, one of which is black. The probability of pulling out the black one is $\frac{1}{10}$, given Alex later pulls out an orange one.

5. There are eight possible outcomes in flipping three coins, such as HHT and HTH. The probability that all of the coins are heads, given at least one is heads, is $\frac{1}{8}$.

[C] Tyler draws five cards. For each statement, state the complement. Then state which probability would be easier to calculate, the original statement or the complement.

1. All of the cards are hearts.

2. None of the cards are spades.

3. At least one of the cards is a king.

4. Fewer than 4 of the cards are diamonds.

[D] Ryan rolls 5 four-sided dice. Calculate the probability of each of the following. Use fractions only, and do not reduce.

1. What is the probability that exactly three of the dice land on "4"?

2. What is the probability that at least three of the dice land on "4"?

[E] A randomly ordered playlist consists of 30 rock songs, 20 country songs, and 10 rap songs. 12 of the rock songs, 9 of the country songs, and 3 of the rap songs are done by female artists. Calculate the following probabilities. Use fractions only, and do not reduce.

1. The fourth song is not country.

2. The first song is country or a female artist.

3. The first song is a male artist, given it is not rap.

4. The first two artists are the same sex.

5. At least one of the first three songs is rap.

6. Exactly two of the first three songs is country.

[F] Bonus.

1. Miles is dealt five cards. Calculate the probability of each of the following.

a) a flush

b) a royal flush

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Review 6 Version C

[A] Circle whether each statement is true or false.

T F 1. $G \cap \emptyset = G$

T F 2. $(A \cup B)' = A' \cap B'$

T F 3. Die rolls are dependent events.

T F 4. "Odd" and "less than 4" are mutually exclusive.

T F 5. If $|C| = 20$, $|D| = 8$, and $|C \cup D| = 25$, then $|C \cap D| = 3$.

T F 6. If drawing a heart will win \$2, the expected value is 50¢.

T F 7. The probability of a card being red given it is hearts is 50%.

T F 8. The number of possible arrangements of 3 pennies, a dime, and 5 nickels is $\binom{9}{3} \binom{6}{1} \binom{5}{5}$.

[B] For each problem, state whether or not the denominator given is correct. If it is not, state exactly which items have been removed from the sample space to decrease it.

1. There are 52 cards in a deck. The probability of the second card being an ace is $\frac{4}{52}$.

2. Three crayons are missing from a 24-crayon box. The probability of grabbing the red crayon is $\frac{1}{24}$.

3. Three crayons are missing from a 24-crayon box, but the red crayon is not missing. The odds of grabbing the red crayon is $\frac{1}{24}$.

4. There are 10 marbles in a jar, one of which is black. The probability of pulling out the black one is $\frac{1}{10}$, given Alex later pulls out an orange one.

5. There are eight possible outcomes in flipping three coins, such as HHT and HTH. The probability that all of the coins are heads, given at least one is heads, is $\frac{1}{8}$.

[C] Tyler draws six cards. For each statement, state the complement. Then state which probability would be easier to calculate, the original statement or the complement.

1. All of the cards are hearts.

2. None of the cards are spades.

3. At least one of the cards is a king.

4. Fewer than 4 of the cards are diamonds.

[D] Ryan rolls 6 four-sided dice. Calculate the probability of each of the following. Use fractions only, and do not reduce.

1. What is the probability that exactly three of the dice land on "4"?

2. What is the probability that at least three of the dice land on "4"?

[E] A randomly ordered playlist consists of 30 rock songs, 20 country songs, and 10 rap songs. 12 of the rock songs, 9 of the country songs, and 3 of the rap songs are done by female artists. Calculate the following probabilities. Use fractions only, and do not reduce.

1. The third song is country.

2. The first song is rock or country or a female artist.

3. The first song is rap, given it is a male artist.

4. The first two songs are the same genre.

5. At least one of the first three songs is not rap.

6. Exactly two of the first four songs are country.

[F] Bonus.

1. Miles is dealt five cards. Calculate the probability of each of the following.

a) no pairs

b) four of a kind

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Review 6 Version D

[A] Circle whether each statement is true or false.

T F 1. $G \cap \emptyset = G$

T F 2. $(A \cup B)' = A' \cap B'$

T F 3. Die rolls are dependent events.

T F 4. "Odd" and "less than 4" are mutually exclusive.

T F 5. If $|C| = 20$, $|D| = 8$, and $|C \cup D| = 25$, then $|C \cap D| = 3$.

T F 6. If drawing a heart will win \$2, the expected value is 50¢.

T F 7. The probability of a card being red given it is hearts is 50%.

T F 8. The number of possible arrangements of 3 pennies, a dime, and 5 nickels is $\binom{9}{3} \binom{6}{1} \binom{5}{5}$.

[B] For each problem, state whether or not the denominator given is correct. If it is not, state exactly which items have been removed from the sample space to decrease it.

1. There are 52 cards in a deck. The probability of the second card being an ace is $\frac{4}{52}$.

2. Three crayons are missing from a 24-crayon box. The probability of grabbing the red crayon is $\frac{1}{24}$.

3. Three crayons are missing from a 24-crayon box, but the red crayon is not missing. The odds of grabbing the red crayon is $\frac{1}{24}$.

4. There are 10 marbles in a jar, one of which is black. The probability of pulling out the black one is $\frac{1}{10}$, given Alex later pulls out an orange one.

5. There are eight possible outcomes in flipping three coins, such as HHT and HTH. The probability that all of the coins are heads, given at least one is heads, is $\frac{1}{8}$.

[C] Tyler draws eight cards. For each statement, state the complement. Then state which probability would be easier to calculate, the original statement or the complement.

1. All of the cards are hearts.

2. None of the cards are spades.

3. At least one of the cards is a king.

4. Fewer than 4 of the cards are diamonds.

[D] Ryan rolls 9 four-sided dice. Calculate the probability of each of the following. Use fractions only, and do not reduce.

1. What is the probability that exactly three of the dice land on "4"?

2. What is the probability that at least three of the dice land on "4"?

[E] A randomly ordered playlist consists of 30 rock songs, 20 country songs, and 10 rap songs. 12 of the rock songs, 9 of the country songs, and 3 of the rap songs are done by female artists. Calculate the following probabilities. Use fractions only, and do not reduce.

1. The second song is country.

2. The first song is a male artist or not rap.

3. The first song is not rap, given it is a male artist.

4. The first two songs are not the same genre.

5. At least two of the first three songs are rap.

6. The first 4 songs include exactly 1 rock and 1 rap.

[F] Bonus.

1. Miles is dealt five cards. Calculate the probability of each of the following.

a) a straight

b) a straight flush