Name: _____ Date: _____

Probability with Permutations and Combinations - Medium

Order matters. Use permutations to count.

1. How many ways can 3 of 7 students line up for a photo?

2. A club of 7 chooses a president, a vice president, and a secretary. How many outcomes are possible?

3. 7 horses run a race. How many ways can the top 3 places finish?

4. How many ways can 3 different books be placed on a shelf, chosen from 12 books?

5. How many ways can 5 different books be placed on a shelf, chosen from 10 books?

6. A club of 18 chooses a president, a vice president, and a secretary. How many outcomes are possible?

Name: _____ Date: _____

Probability with Permutations and Combinations - Medium

Order matters. Use permutations to count.

7. How many ways can 4 of 9 students line up for a photo?

8. How many ways can 2 different books be placed on a shelf, chosen from 11 books?

9. A playlist of 13 songs is shuffled. How many orders are possible for the first 4 songs?

10. A playlist of 11 songs is shuffled. How many orders are possible for the first 3 songs?

11. 11 horses run a race. How many ways can the top 2 places finish?

12. 13 horses run a race. How many ways can the top 4 places finish?

Name: _____ Date: _____

Probability with Permutations and Combinations - Medium

Order matters. Use permutations to count.

13. A playlist of 9 songs is shuffled. How many orders are possible for the first 3 songs?

14. 7 horses run a race. How many ways can the top 2 places finish?

15. How many 3-digit codes can be made from the digits 0-9 if no digit repeats?

16. A playlist of 15 songs is shuffled. How many orders are possible for the first 4 songs?

Probability with Permutations and Combinations - Medium - Answer Key

1. How many ways can 3 of 7 students line up for a photo?

   210

2. A club of 7 chooses a president, a vice president, and a secretary. How many outcomes are possible?

   210

3. 7 horses run a race. How many ways can the top 3 places finish?

   210

4. How many ways can 3 different books be placed on a shelf, chosen from 12 books?

   1,320

5. How many ways can 5 different books be placed on a shelf, chosen from 10 books?

   30,240

6. A club of 18 chooses a president, a vice president, and a secretary. How many outcomes are possible?

   4,896

Probability with Permutations and Combinations - Medium - Answer Key

7. How many ways can 4 of 9 students line up for a photo?

   3,024

8. How many ways can 2 different books be placed on a shelf, chosen from 11 books?

   110

9. A playlist of 13 songs is shuffled. How many orders are possible for the first 4 songs?

   17,160

10. A playlist of 11 songs is shuffled. How many orders are possible for the first 3 songs?

    990

11. 11 horses run a race. How many ways can the top 2 places finish?

    110

12. 13 horses run a race. How many ways can the top 4 places finish?

    17,160

Probability with Permutations and Combinations - Medium - Answer Key

13. A playlist of 9 songs is shuffled. How many orders are possible for the first 3 songs?

    504

14. 7 horses run a race. How many ways can the top 2 places finish?

    42

15. How many 3-digit codes can be made from the digits 0-9 if no digit repeats?

    720

16. A playlist of 15 songs is shuffled. How many orders are possible for the first 4 songs?

    32,760