Permutations

Liberal Arts Mathematics

Assignment Text

Answer the following problems from Section 7.2 of the textbook: 1 – 2, 9 – 12, 19 – 22.

For reference, the text of the problems are duplicated below.

For the following exercises, give a whole number that's equal to the given expression.

1. $3!$

2. $9!$

9. ${}_4P_3$

10. ${}_7P_5$

11. ${}_{12}P_{10}$

12. ${}_{14}P_{10}$

The following exercises involve a horse race with 13 entrants.

19 . How many possible complete orders of finish are there?

20 . An exacta bet is one where the player tries to predict the top two finishers in order. How many possible exacta bets are there for this race?

21 . A trifecta bet is one where the player tries to predict the top three finishers in order. How many possible trifecta bets are there for this race?

22 . A superfecta bet is one where the player tries to predict the top four finishers in order. How many possible superfecta bets are there for this race?

Answer Key

1. 6

2. 362,880

9. 24

10. 2520

11. 239,500,800

12. 3,632,428,800

19. 6,227,020,800

20. 156

21. 1716

22. 17,160

Student Feedback Templates

#1 should be 6 (3*2*1)

#2 should be 362,880 (9*8*7*6*5*4*3*2*1)

#9 should be 24 (4*3*2)

#10 should be 2520 (7*6*5*4*3)

#11 should be 239,500,800 (12*11*10*9*8*7*6*5*4*3)

#12 should be 3,632,428,800 (14*13*12*11*10*9*8*7*6*5)

#19 should be 6,227,020,800 (13! = 13*12*11*10*9*8*7*6*5*4*3*2*1)

#20 should be 156 (13_P_2 = 13 * 12)

#21 should be 1716 (13_P_3 = 13*12*11)

#22 should be 17,160 (13_P_10 = 13*12*11*10)