

Chapter Test C

For use after Chapter 12

Find the number of permutations or combinations.

1. ${}_7P_5$ 2. ${}_{12}P_7$ 3. ${}_7C_5$ 4. ${}_{12}C_7$

5. Find the number of distinguishable permutations of the letters in CLEVELAND.

Expand the power of the binomial.

6. $(x + y)^5$ 7. $(2x - y)^3$ 8. $(x + 2)^6$ 9. $(1 - x^2)^5$

A card is drawn randomly from a standard 48-card pinochle deck. Find the probability of drawing the given card. (Note that a pinochle deck consists of all four suits. The cards 9, 10, jack, queen, king, ace appear twice in each suit. There are no 2, 3, 4, 5, 6, 7, or 8s.)

10. any ace 11. any black queen 12. any heart
 13. any 9 or 10 14. any ace of hearts 15. any 7

Find the indicated probability.

16. $P(A) = \frac{3}{5}$ 17. $P(A) = 50\%$ 18. $P(A) = \frac{?}{?}$
 $P(A') = \frac{?}{?}$ $P(B) = 50\%$ $P(B) = \frac{1}{3}$
 $P(A \text{ or } B) = \frac{?}{?}$ $P(A \text{ or } B) = \frac{5}{6}$
 $P(A \text{ and } B) = 0\%$ $P(A \text{ and } B) = \frac{1}{4}$

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____

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Find the indicated probability.

- 19.
- A
- and
- B
- are independent events.

$$P(A) = 0.35$$

$$P(B) = \underline{\quad ? \quad}$$

$$P(A \text{ and } B) = 0.2275$$

- 20.
- A
- and
- B
- are dependent events.

$$P(A) = \frac{1}{3}$$

$$P(B|A) = \frac{2}{3}$$

$$P(A \text{ and } B) = \underline{\quad ? \quad}$$

21. **ACT Test** Twenty thousand students in your state took the ACT test. On the math portion the mean was 21 and the standard deviation was 5. If the scores resulted in a normal distribution, how many students scored at least 16? (Give the percent and the number.)
22. A normal distribution has a mean of 200 and a standard deviation of 25. Find the probability that a randomly selected x -value is in the interval between 150 and 250.
23. In Exercise 22, what is the probability that the randomly selected x -value is between 225 and 250?
24. Find the mean and standard deviation of a normal distribution that approximates a binomial distribution of 75 trials with a probability of 0.34.
25. **Committee Selection** A committee of 5 people is to be selected from student council. Council has 6 boys and 7 girls. What is the probability that the committee will have 3 boys?

19. _____

20. _____

21. _____

22. _____

23. _____

24. _____

25. _____