

Chapter 10

10.1 For the given password configuration, determine how many passwords are possible if (a) digits and letters can be repeated, and (b) digits and letters cannot be repeated.

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| 1. 8 digits | 2. 8 letters |
| 3. 5 letters followed by 1 digit | 4. 2 digits followed by 2 letters |

10.1 Find the number of permutations.

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| 5. ${}_5P_2$ | 6. ${}_6P_1$ | 7. ${}_9P_9$ | 8. ${}_{12}P_4$ |
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10.1 Find the number of distinguishable permutations of the letters in the word.

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| 9. VANILLA | 10. CHOCOLATE | 11. STRAWBERRY | 12. COFFEE |
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10.2 Find the number of combinations.

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| 13. ${}_7C_3$ | 14. ${}_4C_1$ | 15. ${}_{10}C_9$ | 16. ${}_{15}C_6$ |
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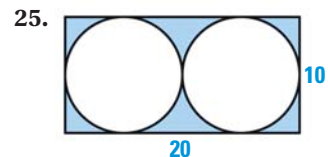
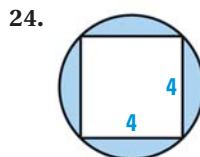
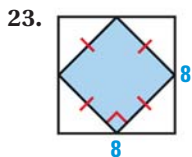
10.2 Use the binomial theorem to write the binomial expansion.

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| 17. $(x - 3)^3$ | 18. $(2x + 3y)^4$ | 19. $(p^2 + 4)^5$ | 20. $(x^3 + y^2)^6$ |
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10.3 You have an equally likely chance of choosing any integer from 1 through 25. Find the probability of the given event.

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| 21. An odd number is chosen. | 22. A multiple of 3 is chosen. |
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10.3 Find the probability that a dart thrown at the given target will hit the shaded region. Assume the dart is equally likely to hit any point inside the target.



10.4 Events A and B are disjoint. Find $P(A \text{ or } B)$.

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| 26. $P(A) = 0.4, P(B) = 0.15$ | 27. $P(A) = 0.3, P(B) = 0.5$ | 28. $P(A) = 0.7, P(B) = 0.21$ |
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10.4 Find the indicated probability. State whether A and B are disjoint events.

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| 29. $P(A) = 0.25$
$P(B) = 0.55$
$P(A \text{ or } B) = \underline{\quad?}$
$P(A \text{ and } B) = 0.2$ | 30. $P(A) = 0.52$
$P(B) = 0.15$
$P(A \text{ or } B) = 0.67$
$P(A \text{ and } B) = \underline{\quad?}$ | 31. $P(A) = 0.54$
$P(B) = 0.28$
$P(A \text{ or } B) = 0.65$
$P(A \text{ and } B) = \underline{\quad?}$ | 32. $P(A) = 0.5$
$P(B) = 0.4$
$P(A \text{ or } B) = \underline{\quad?}$
$P(A \text{ and } B) = 0.3$ |
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10.5 Find the probability of drawing the given cards from a standard deck of 52 cards (a) with replacement and (b) without replacement.

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| 33. A jack, then a 3 | 34. A club, then another club | 35. A black ace, then a red card |
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10.6 Calculate the probability of tossing a coin 15 times and getting the given number of heads.

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| 36. 1 | 37. 4 | 38. 7 | 39. 15 |
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