Algebra 2 Chapter 10 Review

HW #74: SHOW ALL WORK on a separate piece of paper. All graphs must be on graph paper.

1. A lunch menu consists of 4 different kinds of sandwiches, 4 different kinds of soup, and 6 different drinks. How many choices are there for ordering a sandwich, a bowl of soup, and a drink?

2. How many different ways can you arrange six scoops on a cone?

3. Eleven people are entered in a race. If there are no ties, in how many ways can the first two places come out?

4. From a group of eight boys and three girls, a boy and a girl will be selected to attend a conference. In how many possible ways can the selection be made?

5. You own 7 pairs of jeans and are taking 6 of them on vacation. In how many ways can you choose 6 pairs of jeans from the 7?

6. A four-person committee is chosen at random from a group of 15 people. How many different committees are possible?

7. How many different 3-card hands can be drawn from a standard deck of 52 playing cards?

8. In a student body election, there are three candidates for president, four candidates for vice-president, and five candidates for secretary. How many possible groups of officers are there?

9. Expand $(q + 3r)^3$.

10. Expand $(2s - 3t)^3$.

11. A six-sided die is rolled 60 times. Six comes up 13 times.
    a. What is the theoretical probability of rolling a six?
    b. What is the experimental probability of rolling a six?

12. A number cube is rolled 370 times and the results recorded as follows: there were 64 ones, 69 twos, 58 threes, 67 fours, 66 fives, and 46 sixes. What is the experimental probability of rolling an even number?

13. Of 100 students, 23 are taking Calculus, 29 are taking French, and 12 are taking both Calculus and French. If a student is picked at random, what is the probability that the student is taking Calculus or French?

14. A card is drawn at random from a standard deck of playing cards. Find the probability that it is not a face card (**J**, **Q**, or **K**).

15. A drawer contains 10 red socks, 6 white socks, and 8 blue socks. Without looking, you draw out a sock, return it, and draw out a second sock. What is the probability that the first sock is blue and the second sock is white?

16. A bag contains 3 red marbles and 5 purple marbles. One marble is drawn at random and not replaced. Then a second marble is drawn at random. What is the probability that the first marble is purple and the second one is red?

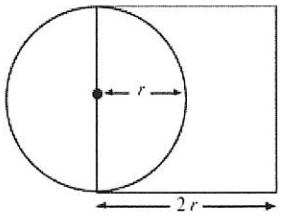
17. A drawer contains 6 red socks, 5 white socks, and 9 blue socks. Without looking, you draw out a sock and then draw out a second sock without returning the first sock. What is the probability that the first sock and the second sock are both red?

18. Four cards are randomly selected from a standard 52-card deck. What is the probability of getting 4 hearts or 4 numbers less than 6 (count aces as 1)?

19. A and B are two events. $P(A) = 0.71$; $P(B) = 0.36$; $P(A \text{ and } B) = 0.23$. Find the probability of A or B.

20. A and B are independent events. $P(A) = 0.6$ and $P(B) = 0.8$, find $P(A \text{ and } B)$.

Half of a circle is inside a square and half is outside, as shown.



21. If a point is selected at random inside the square, find the probability that the point is also inside the circle.

22. If a point is selected at random inside the square, find the probability that the point is not inside the circle.

23. A card is drawn at random from a standard deck of playing cards. Find the probability that it is not an ace or a heart.

24. If $P(A) = 0.72$, what is $P\left(\overline{\text{A}}\right)$?

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Answer Section

1. 96
2. 720
3. 110
4. 24
5. 7
6. 1365
7. 22,100
8. 60
9. $q^3 + 9q^2r + 27qr^2 + 27r^3$
10. $8s^3 - 36s^2t + 54st^2 - 27t^3$
11. a. $\frac{1}{6}$
    b. $\frac{13}{60}$
12. 0.49
13. $\frac{2}{5}$
14. $\frac{40}{52} = \frac{10}{13}$
15. $\frac{1}{12}$
16. $\frac{15}{56}$
17. $\frac{3}{38}$
18. 0.021
19. 0.84
20. 0.48
21. $\frac{\pi}{8}$
22. $\frac{8-\pi}{8}$
23. $\frac{9}{13}$
24. 0.28