

9. If $P(A)=.5$, $P(B)=.25$ and $P(A \cup B)=.75$, then events A and B must be

- a) coincidental b) dependent c) independent d) mutually exclusive
e) N.O.T.

10. If a card is drawn from a standard deck find $P(\text{face card or red card})$.

- a) $\frac{19}{26}$ b) $\frac{17}{26}$ c) $\frac{8}{13}$ d) $\frac{19}{52}$ e) N.O.T.

11. Four men and four women are to attend a dinner party at which men and women will occupy alternate seats at a circular table. What is the probability that a certain man and his wife will sit together if the guests are randomly seated?

- a) $\frac{1}{4}$ b) $\frac{2}{3}$ c) $\frac{1}{8}$ d) $\frac{3}{4}$ e) N.O.T.

12. Jimmy and Chuck are playing a game. Chuck flips a coin and Jimmy calls it while its in the air. If Jimmy calls it correctly he wins, if not, Chuck wins. What is the probability that Jimmy will win 4 times before Chuck wins 3 times?

- a) $\frac{3}{7}$ b) $\frac{1}{14}$ c) $\frac{11}{32}$ d) $\frac{35}{128}$ e) N.O.T.

13. Billy, Sarah and Jane are working a math problem. It is known that there is a one-third chance that Billy will get it right; there is a three-fourths chance that Sarah will answer correctly and four-fifths that Jane will get it. If they work independently, what is the probability that exactly 2 of them will answer the question correctly?

- a) $\frac{1}{750}$ b) $\frac{1}{25}$ c) $\frac{19}{60}$ d) $\frac{1}{2}$ e) N.O.T.

14. What is the 31st element in the 33rd row of Pascal's triangle?

- a) 33 b) 496 c) 528 d) 5488 e) N.O.T.

15. If $P(A)=.2$ and $P(B|A)= 1/3$, find $P(A \cap B)$

- a) $\frac{1}{15}$ b) $\frac{7}{15}$ c) $\frac{8}{15}$ d) $\frac{3}{5}$ e) N.O.T.

16. For any one game of the NBA finals it has been established that the odds are 3 to 2 that the Lakers will beat the Celtics. If the series is a best 4 out of 7, what is the probability that the Celtics will win in exactly 5 games?

- a) $\frac{48}{3125}$ b) $\frac{128}{3125}$ c) $\frac{192}{3125}$ d) $\frac{48}{625}$ e) N.O.T.

17. A grid is composed of 16 squares with each side having length 4. A circular disk of diameter 1 is thrown at and lands on the grid. What is the probability that the disk is not touching the side of any square?

- a) $\frac{15}{64}$ b) $\frac{7}{16}$ c) $\frac{9}{16}$ d) $\frac{49}{64}$ e) N.O.T.

18. In how many ways may 4 horses be placed in 8 stalls?

- a) 28 b) 70 c) 1260 d) 1680 e) N.O.T.

19. In how many ways may a president, vice-president and historian be chosen from a group of 20?

- a) 1140 b) 2560 c) 6840 d) 8000 e) N.O.T.

20. A hat contains 6 red marbles, 5 white marbles and 3 blue marbles. If 4 marbles are chosen at random, what is the probability of choosing at least 2 blue marbles?

- a) $\frac{13}{77}$ b) $\frac{16}{91}$ c) $\frac{18}{91}$ d) $\frac{170}{1001}$ e) N.O.T.

21. In how many ways may a player be dealt a 5-card straight from a standard deck if an Ace may count as a low or high card?

- a) 9,216 b) 9,876 c) 10,240 d) 11,264 e) N.O.T.

22. If the probability of Jimmy answering a math question correctly is .4, what is the probability that he will get at least 80% on a five question test?

- a) $\frac{48}{625}$ b) $\frac{272}{3125}$ c) $\frac{272}{625}$ d) $\frac{48}{3125}$ e) N.O.T.

23. Which expression is equivalent to ${}^{2000}C_{1998}$?

- a) $\frac{2000!}{1998!}$ b) $\frac{2000^P_{1998}}{2!}$ c) $\frac{2000! \cdot 2!}{1998!}$ d) $\frac{2000^P_2}{2!}$ e) N.O.T.

24. If the odds that a certain horse will win the Kentucky Derby are 5 to 3, what is the probability that he will lose?

- a) $\frac{3}{8}$ b) $\frac{2}{5}$ c) $\frac{3}{5}$ d) $\frac{5}{8}$ e) N.O.T.

25. How many whole number factors does 3600 have?

- a) 16 b) 32 c) 44 d) 45 e) N.O.T.

26. How many 5-letter sequences may be formed using 2 vowels from the word ASTEROID and 3 consonants from the word ARCHIVE?

- a) 24 b) 48 c) 1240 d) 2880 e) N.O.T.

27. In a class election ballots are valid only if the voter casts a vote for at least one office. In how many ways may a valid ballot be marked if there are 3 candidates for president, 4 for vice-president, 2 for secretary and 3 for historian?

- a) 72 b) 180 c) 192 d) 240 e) N.O.T.

28. A man has 2 quarters, 5 dimes, 3 nickels and a penny in his pocket as he approaches a toll booth. If the toll is \$.25, what is the minimum number of coins he must take from his pocket to be sure that he will have enough money to pay the toll?

- a) 3 b) 4 c) 5 d) 6 e) N.O.T.

29. If two numbers between 0 and 2 inclusive are chosen at random, what is the probability that the sum of their squares exceeds 2?

- a) $\frac{\pi-2}{2}$ b) $\frac{4-\pi}{4}$ c) $\frac{8-\pi}{8}$ d) $\frac{16-\pi}{16}$ e) N.O.T.

30. Bill, Tom and George are rolling dice. The first man to roll a 7 wins. The players proceed in the above order with each man rolling one time until someone wins. What is the probability that Tom will win?

- a) $\frac{1}{3}$ b) $\frac{5}{36}$ c) $\frac{65}{216}$ d) $\frac{30}{91}$ e) N.O.T.