You may use a calculator anywhere on this.

# Probability Take Home and Check Accelerated

1) What is the sample space when 2 coins are tossed?

2) At Kennedy Middle School, 3 out of 5 students make the honor roll. What is the probability that a student does not make the honor roll? Give your answer as a fraction, decimal and percent.

3) A large basket of fruit contains 3 oranges, 2 apples and 5 bananas. If a piece of fruit is chosen at random, what is the probability of getting an orange or a banana? Give your answer as a fraction, decimal and percent.
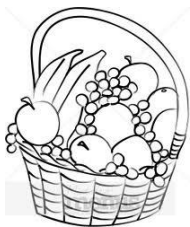
4) A pair of dice is rolled. What is the probability of getting a sum of 2? Give your answer as a fraction, decimal and percent.

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[1]   [2]   [3]

   [4]   [5]
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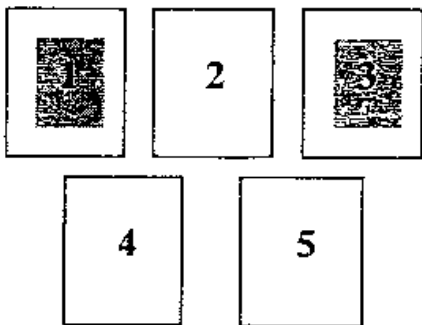
5) A card from above is drawn at random. Write the probabilities as fractions and percents.

   a) P (1)
   b) P (6)
   c) P (shaded)
   d) P (not shaded)
   e) P (<8)
   f) P (odd)
   g) P (divisible by 2)

6) Which best describes a sample space?

   a) An event
   b) A number of unsuccessful outcomes
   c) A set of all possible outcomes of an event
   d) A set of successful outcomes

7) When traveling from Midland to Houston, a tourist plans to make stops at Austin and San Antonio. There are 2 scenic routes from Midland to Austin. There are 4 scenic routes from Austin to San Antonio, and 2 scenic routes from San Antonio to Houston. How many different scenic routes can the tourist take? Show the work!

8) A coin purse contains 3 pennies, a nickel, 3 dimes and 2 quarters. If the first coin is not replaced before the second coin is drawn, what is the probability that the first coin is a dime and the second coin is a quarter?

9) Mr. Potato Head makes chairs. He uses leather, corduroy, vinyl or plastic for the upholstery. The frames are made of oak, maple or ash.

   a) How many choices does a customer have?

   b) What is the probability that a choice is oak with leather upholstery?
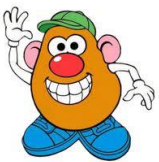
10) A witness observed the license plate of a speeding car leaving the scene of an accident. One of the three digits and two of the three letters on the license plate were covered with mud. You know that the three digits are followed by three letters on all license plates. What is the greatest number of license plates that you would have to check to find the owner of the car?
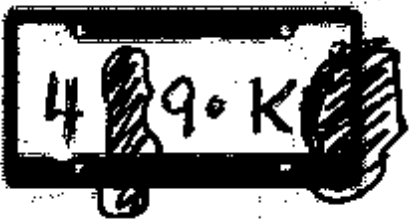
11) Which word should go in the blank: Sometimes, always or never?

   a) The probability of an event that may occur is _____expressed as a whole number.

   b) The experimental probability of an event is _____ the same as the theoretical or mathematical probability of an event.

   c) In an experiment, all possible outcomes are _____ equally likely.
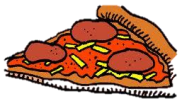
12) A school found that 9 out of 10 students like pizza. If three students are chosen at random with replacement, what is the probability that all three students like pizza?

13) A multiple choice test has 3 questions. Each question is answered with an a, b, c or d. How many outcomes are possible?

14) In Hope, Arkansas, 24 students formed only a small portion of the crowd of 50,000 people who attended a Watermelon Festival.

- 14 of the students tried out for the seed-spitting contest.
- 14 students had a slippery good time in the pool trying to catch a greased watermelon.
- 5 of the students spit seeds and decorated watermelons.
- 7 of the students spit seeds and chased the greased watermelons.
- 4 of the students decorated melons and chased the greased melon.
- 2 of the students did all 3 of the activities.
- The total number who decorated melons was 5 fewer than the number who spit seeds.

Now, on a separate piece of paper, draw a Venn Diagram showing this information.

15) If a school offers 9 different subjects, how many different schedules of 5 classes are possible? A student can have one subject only once.

16) Draw a tree diagram and tell how many possible outcomes?

Smith or Patel for President

Jones, Chin, or Rosen for Vice President

17) Decide whether the possible resulting events are equally likely. Write yes or no.

a) You roll a number cube. You roll an even number, or you roll an odd number.

b) A baby is born. The baby is left-handed, or the baby is right-handed.

c) You toss a marshmallow. The marshmallow lands on its end, or the marshmallow lands on its side.

d) You draw a card from a standard deck of 52 playing cards with no jokers. The card is a heart, the card is a club, the card is a diamond, or the card is a spade.

e) You toss a coin three times. You get three heads, you get two heads and a tail, you get a head and two tails, or you get three tails.

18) Find the probability of each scenario below if you pick one coin from the purse and then another without replacing the first.


a) P (quarter, then dime)
b) P (dime, then penny)
c) P (penny, then penny)
d) P (quarter, then dime, then penny)

19) When you play the first level of the Treasure Hunt Game, the computer hides 6a treasure on the first floor of the palace. The floor plan is pictured below. The computer gives the player clues about where the treasure is located. After each clue, the player must guess which room the treasure is in. The computer continues to give clues until the player finds the treasure. The fewer clues the player needs the find the treasure, the more points the player gets. The first time you play level 1, the treasure is hidden in the library.

a) What is the probability that the treasure will be hidden in the library the second time you play level 1?

b) Bobby says that since the computer randomly picks the location of the treasure, the treasure is just as likely to be hidden in the entrance corridor as in the great hall. Is Bobby correct? Explain your answer.

c) New Game: (treasure cannot land in same area during the game) What is the probability that the treasure will land in the servant's chamber and then the conservatory?

Level 1

8
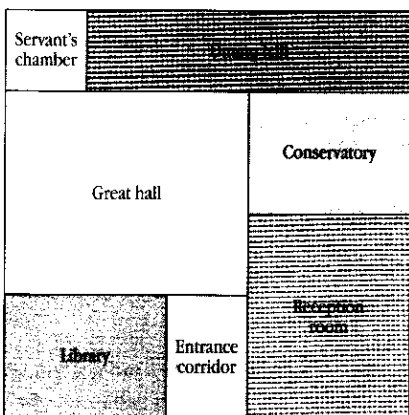
20) Julie develops a new carnival game for the fair at Dale Street School. A bucket contains four blue marbles and one orange marble. Without looking, a player draws one marble from the bucket, replaces it, and then draws a second marble. If the marble is orange on either draw, the player wins.

The Carnival Committee has decided to charge players four 50 cent tickets to play the game. Prizes awarded to the winners will cost the school $5 each.

a) If 100 people play Julie's game, how much money will the school collect? How much money can they expect to pay out in prizes?

b) If 5 people play Julie's game, what are the odds of them ALL winning?

21) Dependent or Independent? (D or I?)

a) I choose a stick from the cup for a refresh question. I do not put it back in and then choose someone to answer the next question.

b) You choose a member of a baseball team to be the pitcher. You then choose a different member of the team to be the catcher.

c) You roll an odd number on a number cube. You then roll the number cube again and roll an even number.

d) A teacher is randomly assigning you, your friend, and 4 other students to 6 different seats. You are assigned the first seat. Your friend is assigned the second seat.

22) You win $10 in the Toss-A-Penny game at an
    amusement park if you toss a penny which
    lands in the shaded area below. You win $20 if
    you toss a penny which lands in the striped
    area.
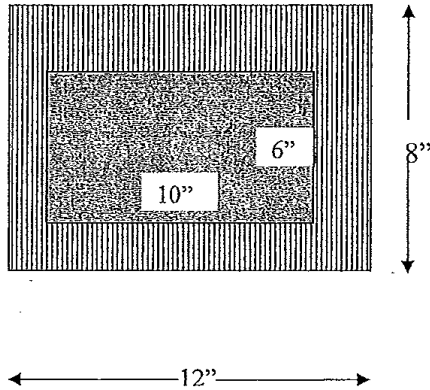
      a)   Find P (landing in a shaded area)
      b)   Find P (landing in a striped area)
      c)   If you toss 200 pennies one after the
              other, in which area do you think
              more pennies will land? Give a reason
              for your answer.

23) A coin is tossed and a 6 sided die is rolled.

   a) Find the probability of getting a head on
      the coin and a 6 on the die.

   b) Explain the theoretical and experimental
      probability using this example.