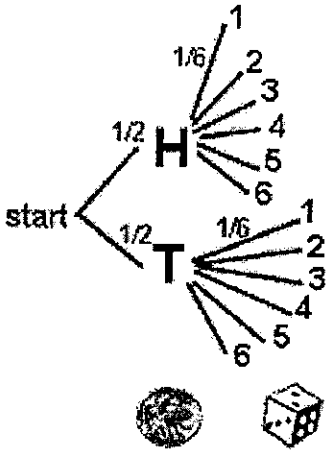
Name_____ Period_____

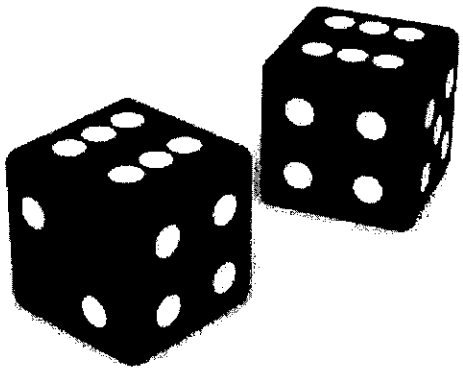
Probability Activities

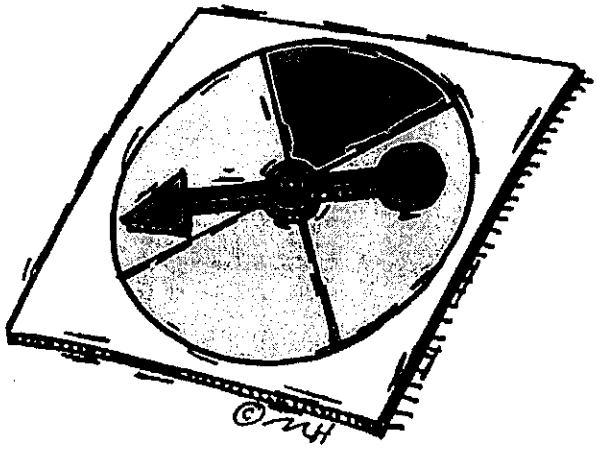
For Problem Solving and Skills Reinforcement

Chapter 3

Overview Version



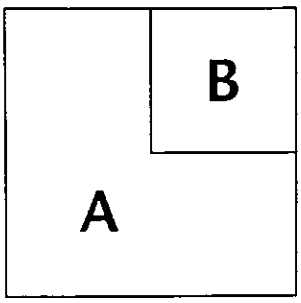


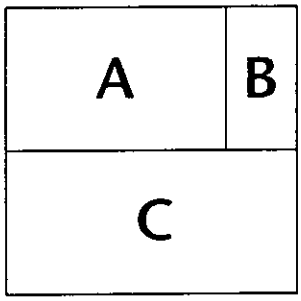


PROBABILITY 21A

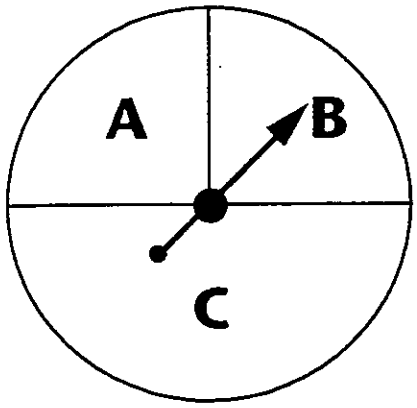
Trees—Unequal Outcomes

Two darts are thrown, one at each dartboard. Draw the tree, list outcomes and probabilities.





The spinner is spun twice. Draw the tree, list outcomes and probabilities.



PROBABILITY 21B

Percents To Decimals

61% =

89% =

7% =

70% =

56.8% =

137% =

100% =

The Unfair Coin

**A coin is weighted so that P(H) = 5/9.
It is tossed twice.**

1. The most likely outcome?

2. P(T,T) = _____

3. P(one tail) = _____

How many times would you expect T,T if the experiment were repeated

4. 81 times?

5. 162 times?

6. 810 times?

7. 100 times?

8. 200 times?

9. 50 times?

10. 800 times?

PROBABILITY 23A

0%, 50%, and 100% of a number

100% of 58 =

50% of 58 =

50% of 62 =

0% of 78 =

100% of 687 =

50% of 640 =

0% of 500 =

PROBABILITY 24A

0%, 10%, 50%, and 100%

50% of 46

0% of 46

100% of 46

10% of 560

10% of 48

10% of 46.8

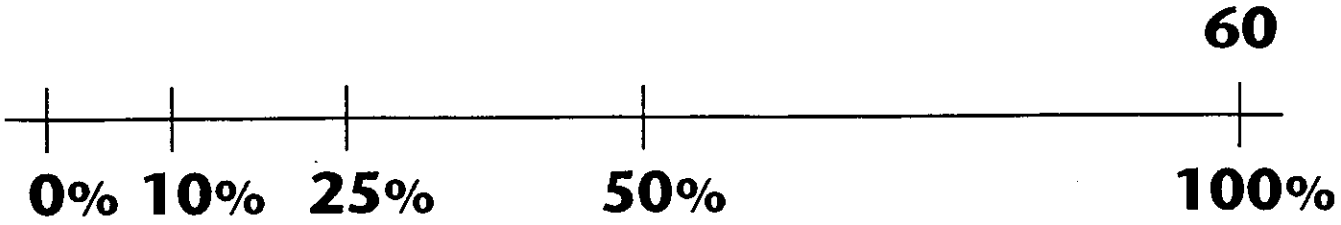
50% of 68

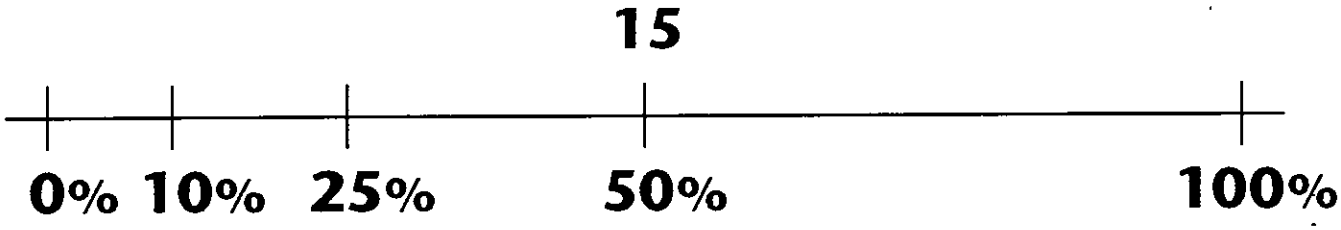
100% of 467

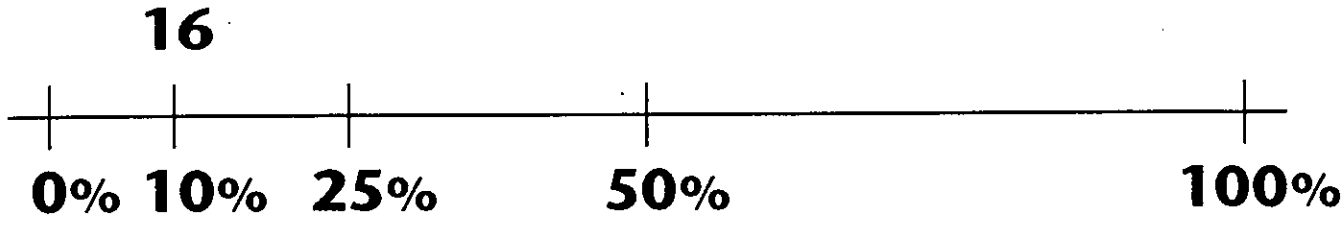
PROBABILITY 25A

0%, 10%, 25%, 50%, and 100%

Complete the following percent lines.







PROBABILITY 26A

The Playoff

To determine the champion, the Sparrows play the Crows in a best-of-three series. The probability of the Sparrows winning a game is 3/4.

Determine the following probabilities:

P(S win in two games)

P(S win in three games)

P(S win the series)

P(C win in two games)

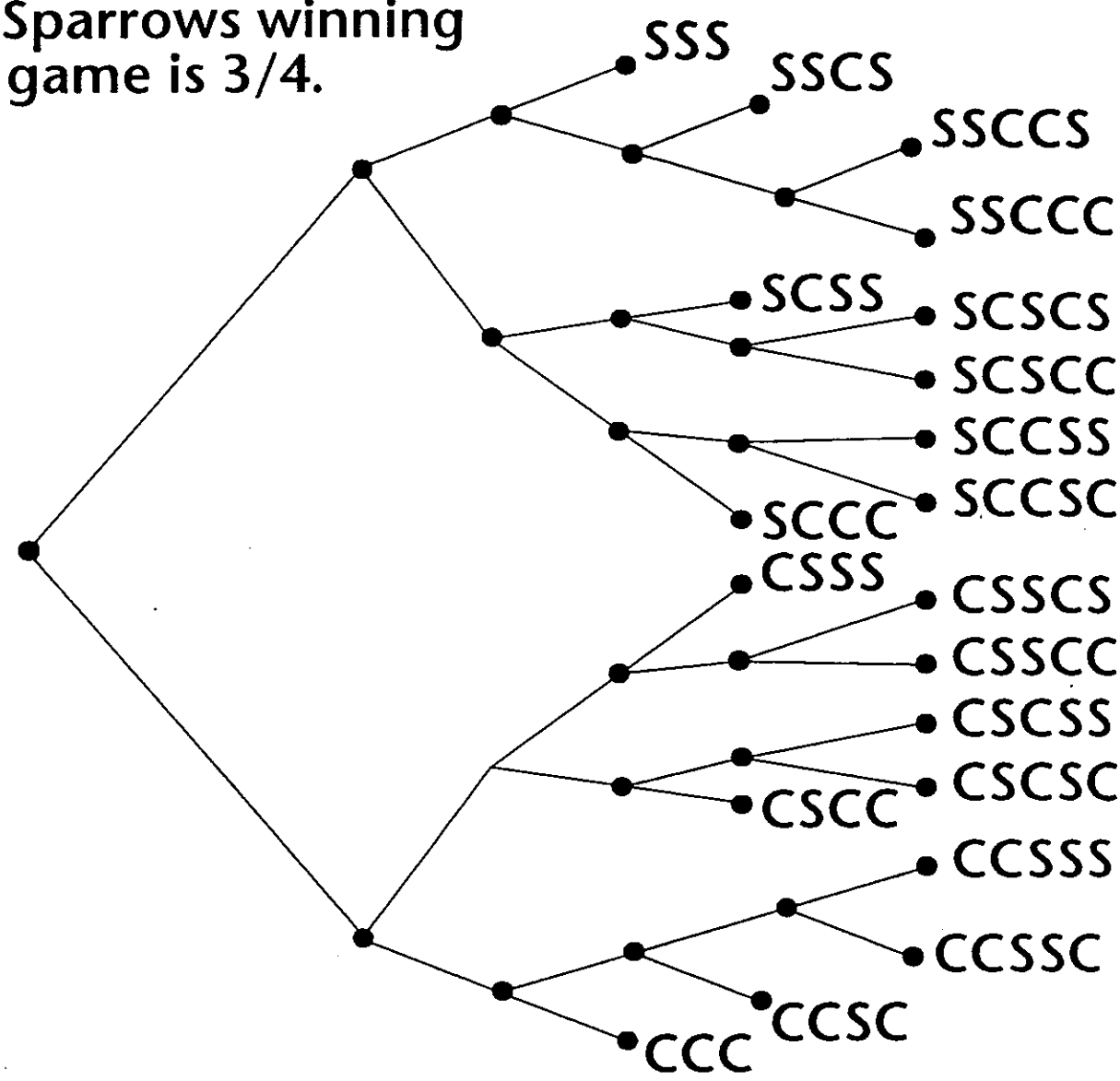
P(C win in 3 games)

P(C win the series)

PROBABILITY 26B

The Playoff/Five Games

The Sparrows play the Crows in a best-of-five series. The probability of the Sparrows winning any game is 3/4.



P(S win in 3) = .429

P(S win in 4) = .316

P(S win in 5) = .158

P(S win series) = .903

PROBABILITY 27B

Fraser The Free Throw Shooter

In the big game, Fraser is fouled and awarded two free throws. The probability that Fraser will make a free throw is 4/5. Determine the following probabilities:

P(he will score 2 points)

P(he will score 1 point)

P(he will not score)

Later in the game he is fouled and is awarded one-and-one. Determine the following probabilities:

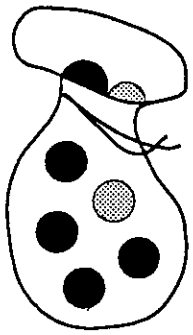
P(he will score 2 points)

P(he will score 1 point)

P(he will not score)

Replacement Versus Nonreplacement

A bag contains five red and two green marbles.



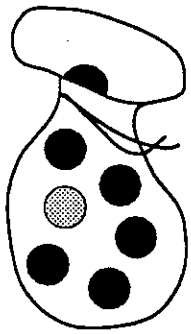
Experiment 1:

1. Choose a marble.
2. Replace the marble.
3. Choose a second marble.

Experiment 2:

Same as Experiment 1, except don't replace the first marble.

A bag contains six red and one green marble.



Experiment 3:

Repeat Experiment 1 with this new bag.

Experiment 4:

Repeat Experiment 2 with this new bag.

PROBABILITY 29

Non-Replacement—Three Draws

A deck of cards consists of four Aces and three Kings.

A A A A K K K

Three cards are drawn *without* replacement.

Determine the following probabilities.

P(all Aces) = _____

P(all Kings) = _____

P(the cards match) = _____

P(two Aces and one King) = _____

PROBABILITY 30

Sorcha and Her Socks

Sorcha has 8 red and 4 green socks in a drawer. In the morning, it is dark in his room and she blindly chooses one and then a second. Determine the probability that she chooses a matched pair.

To improve her probability of choosing a matched pair, Sorcha buys two more pair of green socks. What is her probability of choosing a pair now?

BONUS!!! How many socks would Sorcha need to pull out of the drawer to guarantee getting a matched pair?

PROBABILITY
Problem Set 27

What is the amount of sales tax (5% in Indiana) that Newman would have to pay on items 1–6:

1. $60.00 sweat shirt
2. $5.00 calculator
3. $460.00 CD player
4. $8950.00 car
5. $36,780 yacht
6. 89¢ pencil

Vanslow interviewed 480 Teen Age Mutant Ninja Turtles.

7. 50% watched "WKRP in Cleveland." How many watched the show?
8. 10% watched "Triplet Peaks." How many is that?
9. 193 watched "Rescue 123." What percent is that?
10. 78% watched "Late Night with David Numberman." What percent didn't watch the show?

Driving to work, Penny encounters two traffic lights. The probability that a light is green is 5/8.

11. Draw the two-stage, four-branch tree listing all outcomes as fractions and percents.

Write the following probabilities as percents.

12. P(Penny does not have to stop)
13. P(Penny stops exactly once)
14. P(Penny has to stop twice)

How many times should Penny expect to stop twice if she drives to work

15. 100 times?
16. 50 times?
17. 400 times?
18. 450 times?

The probability that Dead Eye Drina will make a free throw is 90%.

19. Write 90% as a simplified fraction.
20. What is the probability that Drina will miss a free throw?
21. Drina is awarded two free throws. Draw the two-stage tree, listing all outcomes and their probabilities as fractions and whole percents.
22. Drina is awarded one-and-one. Draw the tree with unequal length branches, listing all outcomes and their probabilities as fractions and whole percents.
23. *Guess and Test:* Marle had nickels and quarters in her pocket totaling $1.90. She had eight more nickels than quarters. How many of each coin did she have?
24. *Make a List:* Elram had nickels and quarters in his pocket totaling $1.90. List the seven combinations of coins that Elram might have had?

CRACK THE CODE:

25.
$$\begin{array}{r} \text{LOVLVEL} \\ \times\ \text{L} \\ \hline 87654321 \end{array}$$

Problem Set 28

For problems 1–6, draw a two-stage tree. List outcomes and probabilities as fractions and percents.

1. A deck of cards consists of four cards—two Aces and two Kings. A card is drawn and replaced. A second card is drawn.
2. The same as problem 1, except the first card is not replaced before a second is drawn.
3. A deck of cards consists of three cards—two Aces and a King. A card is drawn and replaced. A second card is drawn.
4. The same as problem 3, except the first card is not replaced before a second is drawn.
5. A bag contains 12 red and 8 green marbles. A marble is drawn and replaced. A second marble is drawn.
6. The same as problem 5, except the first marble is not replaced before a second is drawn.

Determine the 5% sales tax that would be charged on the following items.

7. A $800.00 stereo 8. A $6856.00 ring 9. A $6.98 earring 10. A 47¢ goldfish

Of 568 Martians interviewed, 25% watch "The Tonight Show with Johnny Autoson."

11. How many watch the show?
12. What percent don't watch the show?
13. How many do not watch "The Tonight Show?"

Of 4734 Venusians interviewed, 3456 watch "Tire of Fortune."

14. How many do not watch the show?
15. What percent watch the show?
16. What percent do not watch the show?

Determine a fair tip for the following bills at Deryn's Diner.

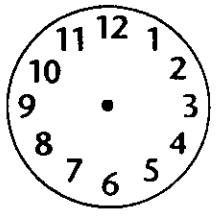
17. $10.00 18. $28.00 19. $68.00 20. $130.00

Write as decimals.

21. 45% 22. 70% 23. 7% 24. 5.9%

GUINNESS RECORD®: The world's greatest bird watcher or "twitcher" is Harvey Gilson of Lausanne, Switzerland who had logged 6,713 of the 9,016 known species by April 10, 1990.

25. What percent of the known species had he logged?
26. How many species had he not logged?



BRAIN BUSTER: Draw a straight line on the clock, so that the numbers on one side of the line have the same sum as those on the other side.

PROBABILITY
Problem Set 29

A deck of cards has four Aces, four Kings, and two Jokers. Thor draws two cards without replacement.

1. Draw a two-stage, nine-branch tree. List outcomes with probabilities as fractions and percents.

Write the following probabilities as percents.

2. P(two Aces)
3. P(two Jokers)
4. P(cards match)
5. P(cards don't match)
6. P(at least one Joker)

How many times would Thor expect to draw two Jokers if he repeated the experiment

7. 100 times?
8. 300 times?
9. 50 times?
10. 450 times?

A bag contains seven red and three green marbles. Schuyler draws three marbles without replacement.

11. Draw a three-stage, eight-branch tree. List outcomes with probabilities as fractions and percents.

Write the following probabilities as percents.

12. P(all red)
13. P(all green)
14. P(two green and one red)
15. P(all same color)
16. P(not same color)

In a survey of 4600 marathoners, 25% wore Sadida running shoes.

17. How many wore Sadida shoes?
18. What percent didn't wear Sadida shoes?
19. How many did not wear Sadida running shoes?

In a survey of 850 luge riders, 376 wore Ekin shoes.

20. What percent wore Ekins?
21. How many did not wear Ekins?
22. What percent did not wear Ekins?

Clotilda bought a new pair of Ekins for $130.00.

23. Determine the 5% sales tax.
24. What was Clotilda's total bill?
25. Clotilda paid for the shoes with seven $20 bills. How much change will she get?

The bill for the brunch at Eppie's Eatery was $18.00.

26. How much should Sybel leave for a tip?
27. Sybel has $20.00. Can she leave a fair tip?

CRACK THE CODE:

28.
$$\begin{array}{r} PAT \\ +\ PTA \\ \hline TAP \end{array} \quad (P = 4)$$

29.
$$\begin{array}{r} PPQ \\ \times\ Q \\ \hline AQBQ \end{array} \quad (A, B, P, \text{and } Q \text{ are consecutive})$$

PROBABILITY
Problem Set 30

1. Mandrake the Magician has a hat with five black and two white rabbits in it. He pulls out a rabbit, replaces it and pulls out a second rabbit. Draw the two-stage, four-branch tree and list all outcomes and their probabilities as fractions and percents.
2. This time Mandrake does not replace the first rabbit before pulling out the second. Draw the two-stage, four-branch tree and list all outcomes and their probabilities as fractions and percents.
3. At the carnival, Robyn is given two chances to toss a ring over a peg. The probability that she will do this on any try is 5/6. If she does it on her first try, she does not get a second chance. Draw the two-stage, three-branch tree and list all outcomes and their probabilities as fractions and percents.

If five cards are drawn from a standard deck, the probability that they will contain a pair is 42%. How many times should Pascale expect to get a pair if he repeats the experiment

4. 100 times?
5. 50 times?
6. 300 times?
7. 450 times?

If a letter is chosen at random from the alphabet, the probability that it is a vowel is 5/26. How many times should Sterling expect to chose a vowel if he repeats the experiment

8. 26 times?
9. 260 times?
10. 13 times?

Determine the following.

11. 100% of 64
12. 50% of 6
13. 0% of 56
14. 10% of 540
15. 5% of 540
16. 15% of 540
17. 25% of 84
18. 50% of 22

Alton got 65 out of 83 correct on the BIG math test.

19. What percent did she get correct?
20. How many did she miss?
21. What percent did she miss?

Bastian got 10% of the 40 questions correct on the big math test.

22. How many questions did Bastian get correct?
23. How many did Bastian miss?
24. What percent did Bastian miss?

CRACK THE CODE:

25.
$$\begin{array}{r} SS \\ \times\ 4 \\ \hline ASK \end{array}$$