Multiple Choice Section

1. (specs-01)
For each probability experiment, the set of all possible outcomes is called

A. odds.
B. event.
C. element.
D. sample space.

2. (specs-02)
Which of the following pair of events is dependent?

A. Two cards are selected from a well-shuffled deck of cards and the experiment is carried out without replacement. The first event is drawing a jack. The second event is drawing another jack.
B. Two cards are selected from a well-shuffled deck of cards and the experiment is carried out with replacement. The first event is drawing an ace of hearts. The second event is drawing a black 5.
C. A fair die is rolled and a fair coin is tossed. The first event is rolling an odd number on the die. The second event is obtaining a tail on a flip of the coin.
D. A fair coin is tossed twice. The first event is obtaining a head on the first flip of the coin. The second event is obtaining a head on the second flip of the coin.

3. (specs-03)
Two fair dice are rolled. A sample space is provided below.

		Second Die					
		1	**2**	**3**	**4**	**5**	**6**
First Die	**1**	(1, 1)	(1, 2)	(1, 3)	(1, 4)	(1, 5)	(1, 6)
	2	(2, 1)	(2, 2)	(2, 3)	(2, 4)	(2, 5)	(2, 6)
	3	(3, 1)	(3, 2)	(3, 3)	(3, 4)	(3, 5)	(3, 6)
	4	(4, 1)	(4, 2)	(4, 3)	(4, 4)	(4, 5)	(4, 6)
	5	(5, 1)	(5, 2)	(5, 3)	(5, 4)	(5, 5)	(5, 6)
	6	(6, 1)	6, 2)	(6, 3)	(6, 4)	(6, 5)	(6, 6)

Consider the following events:

A: The sum of the two dice is 5.
B: The first die rolled is a 1.
C: The second die rolled is a 4.
D: The product of the two dice is 6.

Which of the two events given above are mutually exclusive?

A. A and B
B. A and C
C. B and C
D. C and D

4. (specs-04)
A summary of a recent survey is shown below:

60% liked hamburgers
70% liked pizza
40% liked both

What percentage liked neither?

A. 10%
B. 20%
C. 30%
D. 40%

5. (specs-05)
What is the probability of drawing a heart or a face card in a single random draw from a standard deck of 52 cards?

		Clubs	Diamonds	Hearts	Spades
Face cards	King	♣	♦	♥	♠
	Queen	♣	♦	♥	♠
	Jack	♣	♦	♥	♠
	10	♣	♦	♥	♠
	9	♣	♦	♥	♠
	8	♣	♦	♥	♠
	7	♣	♦	♥	♠
	6	♣	♦	♥	♠
	5	♣	♦	♥	♠
	4	♣	♦	♥	♠
	3	♣	♦	♥	♠
	2	♣	♦	♥	♠
	Ace	♣	♦	♥	♠

A. $\frac{13}{52}$
B. $\frac{12}{52}$
C. $\frac{22}{52}$
D. $\frac{25}{52}$

6. (specs-06)
Suppose you throw a pair of fair 6-sided dice. One is white and the other is black. Let T = total showing on both dice, and B = number showing on the black die. Find $P(T = 8 \mid B = 2)$.

A. $\frac{1}{36}$
B. $\frac{5}{36}$
C. $\frac{1}{6}$
D. $\frac{1}{2}$

7. (specs-07)
Each of the 11 letters from the word MATHEMATICS is placed on a separate card. A card is drawn and not replaced. A second card is drawn. What is the probability that the 2 cards chosen are both vowels?

A. $\frac{1}{20}$

B. $\frac{1}{10}$

C. $\frac{6}{55}$

D. $\frac{16}{121}$

8. (specs-08)
A game begins with two cards being dealt from a standard deck of 52 cards. To win this game, the next card dealt must be the same as either of these first two cards, or fall between them. If the first two cards are a 3 and a 10, what is the probability of winning this game?

A. $\frac{30}{50}$

B. $\frac{32}{50}$

C. $\frac{30}{52}$

D. $\frac{32}{52}$

9. (specs-09)
Two dart players each throw independently one dart at a target. The probability of each player hitting the bullseye is 0.3 and 0.4 respectively. What is the probability that at least one of them will hit the bullseye?

A. 0.12
B. 0.35
C. 0.58
D. 0.70

10. (specs-12)
In a group of 30 people, what is the probability that at least 2 people will have the same birthday?

A. 0.07
B. 0.29
C. 0.71
D. 0.93

11. (sample02-37)
If a fair coin is flipped four times, what is the probability of obtaining exactly two heads?

A. $\frac{1}{16}$

B. $\frac{1}{8}$

C. $\frac{3}{8}$

D. $\frac{1}{2}$

12. (sample02-35)
Two cards are drawn from a well-shuffled deck of 52 cards. What is the probability that the first card is a heart and the second card is a heart if the experiment is carried out without replacement?

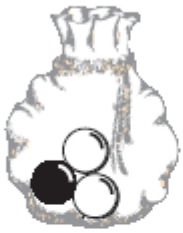
A. $\frac{1}{16}$

B. $\frac{13}{204}$

C. $\frac{1}{17}$

D. $\frac{3}{52}$

13. (specs-10)
Bag A contains 1 black and 2 white marbles, and Bag B contains 1 white and 2 black marbles. A marble is randomly chosen from Bag A and placed in Bag B. A marble is then randomly chosen from Bag B. Determine the probability that the marble selected from Bag B is white.



Bag A

Bag B

A. $\frac{5}{24}$

B. $\frac{1}{3}$

C. $\frac{5}{12}$

D. $\frac{1}{2}$

14. (jan02-39)
If 5 people are randomly selected from a group of 4 boys and 5 girls, determine the probability that exactly 3 girls are selected.

A. 0.08
B. 0.13
C. 0.30
D. 0.48

15. (aug02-37)
If 16% of all students own a Playstation, 12% a Nintendo Game Cube and 5% own both, what percentage of students owns neither?

A. 23%
B. 33%
C. 67%
D. 77%

16. (jan02-37)

When you toss a fair die three times, what is the probability that you will get a 5 on the first toss, a 6 on the second toss, and any number except a 2 on the last toss?

A. $\frac{1}{6} \cdot \frac{1}{6} \cdot \frac{1}{6}$

B. $\frac{1}{6} + \frac{1}{6} + \frac{1}{6}$

C. $\frac{1}{6} \cdot \frac{1}{6} \cdot \frac{5}{6}$

D. $\frac{1}{6} + \frac{1}{6} + \frac{5}{6}$

17. (jan02-36)

If $P(N) = \frac{1}{4}$, determine $P(\overline{N})$.

A. $-\frac{1}{4}$

B. $\frac{1}{4}$

C. $\frac{3}{4}$

D. 4

18. (sample02-36)

Three different names are randomly selected from the following list of five names.

Max
Kim
Codie
Lee
Alex

Determine the probability that "Kim" is one of the three names selected.

A. $\frac{3}{10}$

B. $\frac{2}{5}$

C. $\frac{1}{2}$

D. $\frac{3}{5}$

19. (aug02-39)

In a province, 15% of grade 12 students play basketball. Two grade 12 students in the province are picked at random. Given that at least one of the students plays basketball, determine the probability that both of these students play basketball.

A. 2.25%
B. 3.11%
C. 8.11%
D. 17.19%

20. (jan02-38)
A pizza restaurant conducted a survey on its customers' choice of pizza toppings. The results of this survey were:

63% chose ham
26% chose pepperoni
18% chose both

What is the probability that a customer selected at random from the survey did not choose ham or pepperoni?

A. 11%
B. 29%
C. 53%
D. 82%

21. (apr02-34)
Consider the four events shown below involving randomly drawing a card from a standard deck of 52 cards. Which of these events are mutually exclusive?

F: the card is a face card
K: the card is a King
S: the card is a spade
H: the card is a heart

A. F and H
B. F and K
C. S and H
D. S and K

22. (apr02-35)
A box contains 3 red candies, 11 green candies and 14 black candies. If two candies are randomly selected without replacement from the box, what is the probability that they are both black?

A. $\frac{13}{56}$

B. $\frac{13}{54}$

C. $\frac{1}{4}$

D. $\frac{27}{28}$

23. (apr02-36)
Two fair coins are tossed. What is the probability of 2 tails, given at least one is a tail?

A. $\frac{1}{4}$

B. $\frac{1}{3}$

C. $\frac{1}{2}$

D. $\frac{3}{4}$

24. (jun02-34)
An experiment consists of tossing a fair coin and rolling a fair die at the same time. Determine the probability of tossing a head and rolling a 1 or a 3.

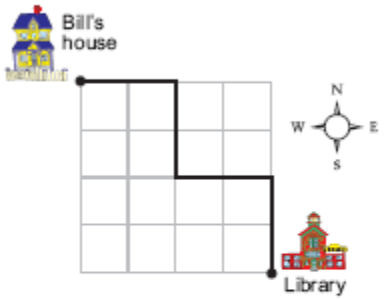
A. $\frac{1}{12}$

B. $\frac{1}{5}$

C. $\frac{1}{6}$

D. $\frac{5}{6}$

25. (jun02-35)
Bill is walking from his house to the library. If Bill only walks south or east, determine the probability that he will select the route indicated in the diagram below. Assume that all routes have an equal chance of being chosen.



A. $\frac{1}{20}$

B. $\frac{1}{35}$

C. $\frac{1}{55}$

D. $\frac{1}{70}$

26. (jun02-36)
If a fair coin is tossed four times, what is the probability of obtaining at least one head?

A. $\frac{1}{16}$

B. $\frac{3}{4}$

C. $\frac{7}{8}$

D. $\frac{15}{16}$

27. (jan03-39)
A golf putting machine is successful on 60% of its attempts at 4-metre putts. What is the probability that the machine will be successful on exactly eight of its next twelve 4-metre putts?

A. 0.04
B. 0.06
C. 0.21
D. 0.77

28. (aug02-38)
In a toss of a fair coin and a roll of a fair die, what is the probability that the coin comes up heads and the die comes up an odd number?

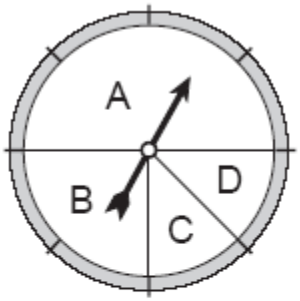
A. $\frac{1}{12}$

B. $\frac{1}{4}$

C. $\frac{1}{2}$

D. $\frac{3}{4}$

29. (jan03-37)
When the pointer is spun, determine the probability that the pointer will stop on section C.



A. $\frac{1}{8}$

B. $\frac{1}{4}$

C. $\frac{1}{3}$

D. $\frac{1}{2}$

30. (jan03-38)
In a group of 100 children, 35 children liked beans, 25 liked both beans and peas, and 5 liked neither beans nor peas. What is the probability that a randomly selected child from this group will like only peas?

A. 0.1
B. 0.35
C. 0.45
D. 0.6

31. (jan03-40)
Three cards are dealt from a standard deck of 52 cards. Determine the probability of getting at least one diamond.

A. 0.41
B. 0.44
C. 0.59
D. 0.75

32. (apr03-37)
An experiment consists of tossing a fair coin and rolling a fair die. What is the probability of obtaining a head and a 5?

A. $\frac{1}{12}$

B. $\frac{1}{10}$

C. $\frac{7}{12}$

D. $\frac{2}{3}$

33. (apr03-38)
A multiple-choice test has 10 questions. Each question has 4 choices, only one of which is correct. If a student answers each question by guessing randomly, which expression below gives the probability that the student gets exactly 7 questions correct?

A. $\frac{({}_7C_4)({}_3C_3)}{{}_{10}C_7}$

B. $\frac{({}_4C_1)({}_4C_3)}{{}_{10}C_4}$

C. ${}_{10}C_7\left(\frac{1}{2}\right)^7\left(\frac{1}{2}\right)^3$

D. ${}_{10}C_7\left(\frac{1}{4}\right)^7\left(\frac{3}{4}\right)^3$

34. (apr03-39)
Six people are randomly selected from a group of 8 males and 10 females to form a committee. Determine the probability that exactly 4 males are selected for this committee.

A. 0.01
B. 0.10
C. 0.17
D. 0.32

35. (jun03-38)
In a recent survey it was determined that out of 100 people, 70 had eaten Chinese food in the last year, 22 had eaten Italian food, and 20 had eaten neither. How many people had eaten both Chinese and Italian food in the last year?

A. 8
B. 10
C. 12
D. 28

36. (jun03-40)
Five balls are randomly drawn without replacement from a bag containing 4 red balls and 6 black balls. What is the probability that at least 3 red balls will be drawn?

A. 0.0238
B. 0.2381
C. 0.2619
D. 0.7381

37. (apr03-40)
Two cards are drawn without replacement from a standard deck of 52 cards. What is the probability that the first card is a face card and the second card is a queen?

A. $\frac{11}{663}$

B. $\frac{3}{169}$

C. $\frac{3}{221}$

D. $\frac{4}{221}$

38. (jun03-37)
A card is randomly drawn from a standard 52-card deck. Determine the probability that the card drawn is a red ace.

A. $\frac{1}{26}$

B. $\frac{1}{13}$

C. $\frac{2}{13}$

D. $\frac{4}{13}$

39. (jun03-39)
On Friday the probability that the Flyers win their game in Prince George is $\frac{5}{9}$ and the probability that the Bears win their game in Smithers is $\frac{12}{17}$. Assuming independence, what is the probability that on Friday the Flyers win their game and the Bears do not win their game?

A. $\frac{20}{153}$

B. $\frac{25}{153}$

C. $\frac{105}{153}$

D. $\frac{130}{153}$

40. (aug03-37)
A bag contains 4 white balls and 6 black balls. Two balls are drawn one at a time without replacement. What is the probability that both balls are the same colour?

A. $\frac{2}{15}$

B. $\frac{1}{3}$

C. $\frac{7}{15}$

D. $\frac{8}{15}$

41. (aug03-38)
A survey of people that live within 40 km of a ski resort found that 22% go snowboarding, 48% go skiing and 6% do both sports. Determine the probability that a randomly selected person does neither sport.

A. 24%
B. 30%
C. 36%
D. 42%

42. (aug03-39)
Two fair coins are tossed. What is the probability that both coins are heads, given that at least one of them is a head?

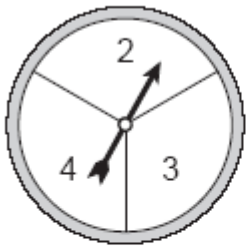
A. $\frac{1}{4}$

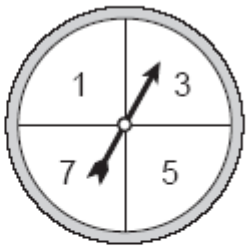
B. $\frac{1}{3}$

C. $\frac{1}{2}$

D. $\frac{3}{4}$

43. (aug03-40)
In the diagram below, each spinner is spun once and the resulting numbers are added. What is the probability that the sum is an odd number?





A. $\frac{5}{12}$

B. $\frac{1}{2}$

C. $\frac{2}{3}$

D. $\frac{5}{7}$

44. (aug03-41)
If a fair die is rolled 8 times, what is the probability of obtaining exactly two  's (5's)?

A. 0.11
B. 0.25
C. 0.26
D. 0.29

45. (jan04-31)
When rolling 2 fair six-sided dice, what is the probability of obtaining a sum that is at most 4?

A. $\frac{1}{12}$

B. $\frac{5}{36}$

C. $\frac{1}{6}$

D. $\frac{5}{6}$

46. (jan04-32)
A 7-card hand is dealt from a standard deck of 52 cards. What is the probability that the hand will contain 3 clubs and 4 red cards?

A. 0.0015
B. 0.0246
C. 0.0320
D. 0.2905

47. (jan04-33)
In a recent survey of grade 12 students, it was found that 72% took mathematics and 53% took chemistry. If 77% took mathematics or chemistry, what percent of students took mathematics only?

A. 5%
B. 19%
C. 24%
D. 48%

48. (jan04-34)
The probability of having type A disease is 6%. The test to determine if a person has type A disease is 80% accurate. This means that the outcome of the test is correct 80% of the time. What is the probability that a randomly selected person tests positive?

A. 0.048
B. 0.236
C. 0.752
D. 0.80

49. (apr04-31)
A fair coin is tossed 30 times. Which expression gives the probability of obtaining exactly 15 heads in the 30 tosses?

A. $\frac{1}{2}$

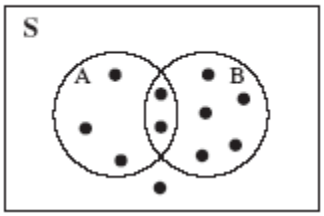
B. $\left(\frac{1}{2}\right)^{15}$

C. ${}_{30}C_{15}\left(\frac{1}{2}\right)^{15}$

D. ${}_{30}C_{15}\left(\frac{1}{2}\right)^{30}$

Use the following diagram to answer questions 50 and 51.

The diagram shows the sample space S of 11 equally likely outcomes.



50. (apr04-32)

Determine $P(\overline{A})$.

A. $\frac{1}{11}$

B. $\frac{5}{11}$

C. $\frac{6}{11}$

D. $\frac{8}{11}$

51. (apr04-33)

Determine $P(B|A)$.

A. $\frac{2}{11}$

B. $\frac{2}{7}$

C. $\frac{2}{5}$

D. $\frac{7}{11}$

52. (apr04-34)

It is known that 1% of the population has a certain disease. A test for this disease is 95% accurate. This means that the outcome of the test is correct 95% of the time. What is the probability that a randomly selected person tests negative?

A. 0.940
B. 0.941
C. 0.945
D. 0.950

53. (jun04-35)

If 5 cards are dealt from a standard deck of 52 cards, determine the probability of obtaining 3 red cards and 2 black *face* cards.

A. 0.0010
B. 0.0150
C. 0.0660
D. 0.3251

54. (jun04-34)
If a fair six-sided die is tossed twice, what is the probability that the first toss will be a number less than 3 and the second toss will be a number more than 3?

A. $\frac{1}{9}$

B. $\frac{1}{6}$

C. $\frac{1}{4}$

D. $\frac{5}{6}$

55. (jun04-36)
A biased coin is designed so that it comes up heads 65% of the time. If this coin is tossed 7 times, determine the probability of obtaining exactly 5 heads.

A. 0.0466
B. 0.2985
C. 0.4643
D. 0.7662

56. (jun04-37)
A bag contains 4 yellow balls and n red balls. Two balls are drawn from the bag, one after the other, without replacement. Which expression represents the probability that one ball is yellow and one ball is red?

A. $\left(\frac{4}{n+4}\right)\left(\frac{n-1}{n+3}\right) + \left(\frac{n-1}{n+4}\right)\left(\frac{3}{n+3}\right)$

B. $\left(\frac{4}{n+4}\right)\left(\frac{n}{n+3}\right) + \left(\frac{n}{n+4}\right)\left(\frac{4}{n+3}\right)$

C. $\left(\frac{4}{n+4}\right)\left(\frac{n}{n+3}\right) + \left(\frac{n-1}{n+4}\right)\left(\frac{3}{n+3}\right)$

D. $\left(\frac{4}{n+4}\right)\left(\frac{3}{n+3}\right) + \left(\frac{n}{n+4}\right)\left(\frac{4}{n+3}\right)$

57. (aug04-36)
There are 10 horses in a race. A particular bet requires a customer to choose the first three horses in the correct finishing order. If all 10 horses have an equal chance of finishing in any position, determine the probability that a single bet wins.

A. 0.0014
B. 0.0083
C. 0.125
D. 0.3

58. (aug04-37)
A coin is biased such that $P(\text{head}) = 0.6$. If this coin is tossed 10 times, calculate the probability of getting between 6 and 8 heads inclusive.

A. 0.3359
B. 0.4133
C. 0.5867
D. 0.6641

59. (aug04-34)

Two fair six-sided dice are rolled and the face values are added. What is the probability of obtaining a sum that is an even number less than 8?

A. $\frac{1}{4}$

B. $\frac{7}{18}$

C. $\frac{1}{2}$

D. $\frac{7}{12}$

60. (aug04-35)

A bag contains 4 red marbles and 5 blue marbles. If two marbles are drawn from the bag without replacement, determine the probability that they are both red.

A. $\frac{4}{27}$

B. $\frac{1}{6}$

C. $\frac{5}{18}$

D. $\frac{59}{72}$

Written Section

1. (specs-13)
If one of the 19 equally likely outcomes in the sample space S is randomly selected, find the probability that:

a) both A and B occur.

b) A but not B occurs.

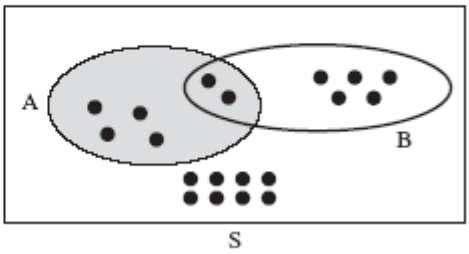
c) neither A nor B occurs.

d) at least one of A or B occurs.

e) at most one of A or B occurs.

f) A occurs given that B has occurred.

g) B occurs given that A has occurred.



2. (specs-14)
Jar 1 has 3 red, 2 white and 5 black balls. Jar 2 has 4 red, 5 white and 3 black balls. A die is rolled and if a 1 or 2 comes up, a ball is selected from Jar 1; however, if a 3, 4, 5 or 6 comes up, a ball is selected from Jar 2.

a) What is the probability of selecting a red ball?

b) If a red ball is selected, what is the probability that it comes from Jar 1?

3. (specs-15)
The probability that a particular car will start on any morning is 0.9. Assuming that whether or not the car starts is independent from morning to morning, what is the probability that this car will start on at least 4 out of 5 mornings?

4. (specs-16)
A multiple-choice test has 12 questions. Each question has 4 choices, only one of which is correct. If a student answers each question by guessing randomly, find the probability that the student gets:

a) none of the questions correct.

b) 3 questions correct.

c) at most 3 questions correct.

d) at least 7 questions correct.

5. (specs-17)
Machine A produces 60% of a product while Machine B produces 40%. 3% of the production from Machine A is defective, while 2% from Machine B is defective. If a defective product is selected, what is the probability that it was produced by Machine B?

6. (sample02-06)
Two factories produce safety pins. 65% of the safety pins come from factory A and the rest of the safety pins come from factory B. In factory A, 2% of the pins are defective; in factory B, 7% of the pins are defective. What is the probability that a defective pin comes from factory A?

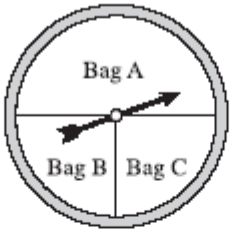
(5 marks)

7. (aug02-06)
Two basketball players, Cole and Amanda, each independently shoot a free-throw at a basket. Cole has a $\frac{2}{3}$ chance of making the free-throw and Amanda has a $\frac{3}{5}$ chance of making the free-throw. What is the probability that at least one of them will make the free-throw shot?

(5 marks)

8. (specs-18)

The pointer is spun to determine a bag, and a marble is then randomly chosen from the selected bag.



a) What is the probability that the chosen marble is black?

b) If the chosen marble is black, what is the probability that another randomly chosen marble from the same bag will also be black?

9. (jan02-02)

A tetrahedral die has four sides numbered 1, 2, 3 and 4. Two tetrahedral dice are rolled.
The sample space is shown below.

		2nd die			
		1	**2**	**3**	**4**
1st die	**1**	(1, 1)	(1, 2)	(1, 3)	(1, 4)
	2	(2, 1)	(2, 2)	(2, 3)	(2, 4)
	3	(3, 1)	(3, 2)	(3, 3)	(3, 4)
	4	(4, 1)	(4, 2)	(4, 3)	(4, 4)

Determine the probability that:

a) the sum of the two dice is equal to 6. **(1 mark)**

b) the product of the two dice is a multiple of 3. **(1 mark)**

c) the number showing up on the first die is greater than the number showing up on the second die. **(1 mark)**

d) the sum of the two dice is equal to 6 or the product of the two dice is a multiple of 3. **(1 mark)**

e) the first die is a 4 given that the sum of the two dice is equal to 6. **(1 mark)**

10. (apr02-07)
A hand of 5 cards is dealt from a standard deck of 52 cards.

a) What is the probability that the hand contains 5 spades? (Answer accurate to at least 4 decimal places.) **(2 marks)**

b) What is the probability that the hand contains 2 hearts, 2 spades and 1 card that is not a heart or a spade? (Answer accurate to at least 4 decimal places.) **(3 marks)**

11. (jun02-06)
The probability of winning a game is 0.7. You play 3 games. (Answer all parts of the question accurate to at least 3 decimal places.)

a) What is the probability that you win all 3 games? **(1 mark)**

b) What is the probability that you win at least twice? **(2 marks)**

c) If you win at least twice, what is the probability that you have 3 wins? **(2 marks)**

12. (jan03-05)
Jar A contains 5 red balls and 7 white balls. Jar B contains 8 red balls and 4 white balls. A fair die is rolled. If a 1 or a 2 comes up, a ball is randomly selected from Jar A, otherwise, a ball is randomly selected from Jar B.

a) Find the probability that a white ball is selected. **(2 marks)**

b) Given that the ball selected is white, find the probability that it came from Jar A. **(2 marks)**

13. (apr03-05)
A building supply store buys 40% of its pine boards from sawmill A and 60% from sawmill B. Due to pine beetle infestation, 7% of the boards from sawmill A and 5% from sawmill B have a blue discoloration. If a randomly picked board is discoloured, what is the probability that it came from sawmill A? **(4 marks)**

14. (jun03-05)
Bag A contains 5 white balls and 2 green balls. Bag B contains 3 white balls and 4 green balls. A fair die is rolled and if a 1 or 2 comes up, a ball is randomly selected from Bag A; however, if a 3, 4, 5 or 6 comes up, a ball is randomly selected from Bag B.

Bag A Bag B

a) What is the probability of selecting a white ball? **(2 marks)**

b) If a white ball is selected, what is the probability that this ball came from Bag A? **(2 marks)**

15. (aug03-05)
A hand of five cards is dealt from a standard deck of 52 cards.

a) What is the probability that the hand contains exactly 1 club? **(2 marks)**

b) What is the probability that the hand contains at most 1 club? **(2 marks)**

16. (jan04-03)

The probability of Bruce sinking a one-metre putt is 85%.

a) Assuming independence, what is the probability that Bruce sinks exactly 10 out of 12 one-metre putts? (Answer accurate to at least 4 decimal places.) **(2 marks)**

b) Assuming independence, what is the probability that Bruce sinks at least 10 out of 12 one-metre putts? (Answer accurate to at least 4 decimal places.) **(2 marks)**

17. (apr04-06)

Bag M contains 5 white balls and 2 red balls. Bag N contains 3 white balls and 4 red balls.

Bag M Bag N

a) A ball is randomly selected from Bag M and placed in Bag N. A ball is then randomly selected from Bag N. What is the probability that the ball selected from Bag N is white? **(3 marks)**

b) If a white ball is selected from Bag N, what is the probability that a red ball was transferred from Bag M to Bag N? **(1 mark)**

18. (jun04-04)

In the Canadian Junior Hockey League, 60% of the players are from Eastern Canada and 40% are from Western Canada. From this league, 18% of the Eastern players and 12% of the Western players go on to play in the NHL. If a randomly chosen NHL player who came from the Canadian Junior Hockey League is selected, what is the probability that he is from Western Canada? **(4 marks)**

19. (aug04-04)

In one of the provinces, 86% of all homes have a television, 50% of all homes have a television and a stereo, and 2% have neither a television nor a stereo.

a) What is the probability that a randomly selected home in this province has a stereo? **(2 marks)**

b) Given that a randomly selected home in this province has a television, what is the probability that this home does **not** have a stereo? **(2 marks)**