

**MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**

**Express the fraction as a percent.**

1)  $\frac{13}{80}$

1) \_\_\_\_\_

A) 16.25 %

B) 6.15 %

C) 61.54 %

D) 1.63 %

**Solve the problem.**

2) Jeans with an original price of \$44 are on sale at 25% off. What is the sale price of the jeans? (Round to the nearest cent, if necessary.) 2) \_\_\_\_\_

A) \$33.00

B) \$55.00

C) \$11.00

D) \$42.90

3) A dress regularly sells for \$130. The sale price is \$84. Find the percent decrease of the sale price from the regular price. 3) \_\_\_\_\_

A) 54.8%

B) 182.6%

C) 35.4%

D) 64.6%

**The principal P is borrowed at simple interest rate r for a period of time t. Find the simple interest owed for the use of the money. Assume 360 days in a year and round answer to the nearest cent.**

4)  $P = \$300.00$

4) \_\_\_\_\_

$r = 4\%$

$t = 4$  months

A) \$4.00

B) \$348.00

C) \$304.00

D) \$48.00

**The principal P is borrowed at simple interest rate r for a period of time t. Find the loan's future value, A, or the total amount due at time t. Round answer to the nearest cent.**

5)  $P = \$150$

5) \_\_\_\_\_

$r = 3\%$

$t = 4$  years

A) \$168.00

B) \$1018.00

C) \$162.00

D) \$154.50

Determine the present value,  $P$ , you must invest to have the future value,  $A$ , at simple interest rate  $r$  after time  $t$ . Round answer to the nearest dollar.

- 6)  $A = \$250.80$  6) \_\_\_\_\_  
 $r = 8\%$   
 $t = 4$  years  
A) \$194                      B) \$190                      C) \$194.80                      D) \$197

Solve the problem.

- 7) A mother invests \$2000 in a bank account at the time of her daughter's birth. The interest is compounded quarterly at a rate of 8%. What will be the value of the daughter's account on her twentieth birthday, assuming no other deposits or withdrawals are made during this period? 7) \_\_\_\_\_  
A) \$12,800.00                      B) \$9750.88                      C) \$3120.28                      D) \$780.07

- 8) The price of a home is \$180,000. The bank requires a 10% down payment. After the down payment, the balance is financed with a 15-year fixed-rate mortgage at 8%. Determine the monthly mortgage payment (excluding escrowed taxes and insurance) to the nearest dollar. 8) \_\_\_\_\_  
A) \$1536                      B) \$1648                      C) \$1548                      D) \$1563

Find the value of the annuity. Round to the nearest cent.

- 9) Periodic Deposit: \$1000 at the end of each year 9) \_\_\_\_\_  
Rate: 4.5% compounded annually  
Time: 10 years  
A) \$3302.43                      B) \$10,802.11                      C) \$34,510.43                      D) \$12,288.21

Solve the problem by applying the Fundamental Counting Principle with two groups of items.

- 10) An apartment complex offers apartments with four different options, designated by A through D. 10) \_\_\_\_\_

A = number of bedrooms (one through four)  
B = number of bathrooms (one through three)  
C = floor (first through fifth)  
D = outdoor additions (balcony or no balcony)

How many apartment options are available?

- A) 240                      B) 14                      C) 16                      D) 120

- 11) You are taking a multiple-choice test that has 8 questions. Each of the questions has 4 choices, with one correct choice per question. If you select one of these options per question and leave nothing blank, in how many ways can you answer the questions? 11) \_\_\_\_\_
- A) 65,536                      B) 12                      C) 4096                      D) 32

**Use the Fundamental Counting Principle to solve the problem.**

- 12) You want to arrange 6 of your favorite CD's along a shelf. How many different ways can you arrange the CD's assuming that the order of the CD's makes a difference to you? 12) \_\_\_\_\_
- A) 120                      B) 720                      C) 30                      D) 36

**Evaluate the factorial expression.**

- 13)  $\frac{6!}{(6-2)!}$  13) \_\_\_\_\_
- A) 48                      B) 360                      C) 15                      D) 30

**Use the formula for  ${}_n P_r$  to evaluate the expression.**

- 14)  $7P_4$  14) \_\_\_\_\_
- A) 840                      B) 5040                      C) 1260                      D) 210

**Use the formula for  ${}_n P_r$  to solve.**

- 15) In a contest in which 8 contestants are entered, in how many ways can the 5 distinct prizes be awarded? 15) \_\_\_\_\_
- A) 672                      B) 112                      C) 6720                      D) 336

Use the formula for  ${}_nC_r$  to evaluate the expression.

- 16)  $10C_4$  16) \_\_\_\_\_  
 A) 1440 B) 210 C) 2520 D) 151,200

Solve the problem.

- 17) From 10 names on a ballot, a committee of 4 will be elected to attend a political national convention. How many different committees are possible? 17) \_\_\_\_\_  
 A) 5040 B) 151,200 C) 2520 D) 210

Use the theoretical probability formula to solve the problem. Express the probability as a fraction reduced to lowest terms.

- 18) A single die is rolled twice. The set of 36 equally likely outcomes is  $\{(1, 1), (1, 2), (1, 3), (1, 4), (1, 5), (1, 6), (2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6), (3, 1), (3, 2), (3, 3), (3, 4), (3, 5), (3, 6), (4, 1), (4, 2), (4, 3), (4, 4), (4, 5), (4, 6), (5, 1), (5, 2), (5, 3), (5, 4), (5, 5), (5, 6), (6, 1), (6, 2), (6, 3), (6, 4), (6, 5), (6, 6)\}$ . Find the probability of getting two numbers whose sum is greater than 10. 18) \_\_\_\_\_  
 A)  $\frac{1}{18}$  B) 3 C)  $\frac{1}{12}$  D)  $\frac{5}{18}$

Solve the problem that involves probabilities with events that are not mutually exclusive.

- 19) The physics department of a college has 9 male professors, 8 female professors, 10 male teaching assistants, and 13 female teaching assistants. If a person is selected at random from the group, find the probability that the selected person is a teaching assistant or a female. 19) \_\_\_\_\_  
 A)  $\frac{21}{40}$  B)  $\frac{23}{40}$  C)  $\frac{9}{20}$  D)  $\frac{31}{40}$

- 20) There are 30 chocolates in a box, all identically shaped. There are 8 filled with nuts, 9 with caramel, and 13 are solid chocolate. You randomly select one piece, eat it, and then select a second piece. Find the probability of selecting 2 solid chocolates in a row. 20) \_\_\_\_\_  
 A)  $\frac{26}{145}$  B)  $\frac{13}{75}$  C)  $\frac{169}{900}$  D)  $\frac{13}{870}$

## Answer Key

Testname: MATH103\_EXAM3\_2012S1

- 1) A
- 2) A
- 3) C
- 4) A
- 5) A
- 6) B
- 7) B
- 8) C
- 9) D
- 10) D
- 11) A
- 12) B
- 13) D
- 14) A
- 15) C
- 16) B
- 17) D
- 18) C
- 19) D
- 20) A