

Math 141

Midterm 2

Version 1

Name	
Section	

Allowed: 1 page of cheat sheet, calculator

Total number of points: 50 points

Time: 50 minutes

Multiple Choice (3 points each)

- 1 Calculate the yield on a \$1000 Treasury bond with a coupon rate of 6% that has a market value of \$860.
a) 6.42 % b) 6.73 % c) 6.98 % d) 7.04 %
- 2 Suppose that, in 2000, you are single and you have a taxable income of \$42,000. By how much will your monthly take home pay be reduced if you make monthly contributions of \$300 to a tax deferred savings plan? (The 2000 tax table is further down.)
a) \$300 b) \$216 c) \$207 d) \$84
- 3 Which of the following describes a study in which the researchers know which participants get a placebo?
a) double blind experiment
b) observational experiment
c) single blind experiment
d) case-control study
- 4 There is a 95% chance that between 53% and 59% of voters will vote for Senator Sam in the next election. What do you know about the sample statistics and the margin of error?
a) 53% of the voters surveyed stated that they will vote for Senator Sam, and the margin of error is 6%.
b) 59% of the voters surveyed stated that they will vote for Senator Sam, and the margin of error is 6%.
c) 56% of the voters surveyed stated that they will vote for Senator Sam, and the margin of error is 3%.
d) 53% of the voters surveyed stated that they will vote for Senator Sam, and the margin of error is 3%.
- 5 Which of the following describes a statistical graph that is embellished with additional art work?
a) Stack plot b) Contour map c) Multiple bar graph d) Pictograph

6 *A telephone poll in the New York metropolitan area asks which film should win the Academy Award for best picture this year.*
 This study may suffer from what type of bias?

- a) Selection bias
- b) Participation bias
- c) no bias

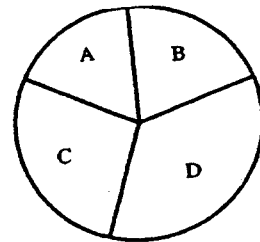
7 A recent newspaper article stated that Snazzy's is the most popular restaurant in the city. The city council decided to sponsor its own survey to determine the accuracy of the article. Which of the following survey questions will give the most accurate survey results?

- a) Which restaurant do you think is the most popular in the city?
- b) Which restaurant in the city do you visit most often?
- c) Which restaurant in the city do you think is the most crowded?
- d) Do you agree that Snazzy's is the most popular restaurant in the city?

8 Table describes the education level of smokers in the US:

Less than high school diploma	High school diploma	Some college	College grad
35%	28%	20%	17%

Which region of this pie chart represents the percentage of smokers with less than a high school diploma?



- a) A
- b) B
- c) C
- d) D

9 Which of the following pairs of variables is likely to have a negative correlation?

- a) The price of jet fuel and the price of an airline ticket.
- b) A person's height and the same person's weight.
- c) The unemployment rate and the number of homeless people.
- d) Interest rates and the number of real estate transactions.

10 Which of the following is likely to be a cause-and-effect relationship?

- a) I washed dishes and then I did the laundry.
- b) It rained and then the street flooded.
- c) The dog barked and then the clock chimed
- d) The phone rang , and then somebody knocked at the door.

Written Answer (5 points each)

- 11 Suppose you set up a new IRA (individual retirement account) that pays an APR of 8.2%, compounded monthly. If you contribute \$130 per month for 11 years, how much will the IRA contain at the end of that time?
- 12 Suppose that you have just obtained a 30 year home mortgage in the amount of \$196,000 at an APR of 6.5 %.
- a) What is your monthly payment?
b) What is your total payment over 30 years?
- 13 Assume 2000 values for the personal exemption (\$ 2800) and the standard deductions (\$ 4400 single, \$ 7350 married filing jointly, \$ 3675 married filing separately, and \$ 6450 head of a household).
When necessary use the table of marginal tax rates below.

Tax rate	single	Married filing jointly	Married filing separately	Head of household
15%	Up to 26,250	Up to 43,850	Up to 21,925	Up to 35,150
28%	26,251 to 63,550	43,851 to 105,950	21,926 to 52,975	35,151 to 90,800
31%	63,551 to 132,600	105,951 to 161,450	52,976 to 80,725	90,800 to 147,050
36%	132,601 to 288,350	161,451 to 288,350	80,726 to 144,175	147,051 to 288,350
39.6%	288,351 and above	288,351 and above	144,176 and above	288,351 and above

Suppose a married couple with no dependents filed jointly and had a taxable income of \$124,600 in 2000. How much income tax did they pay?

- 14 This time series diagram tracks the performance of two mutual funds in the month of August. If \$1000 was invested in Fund 1 and \$2000 was invested in Fund 2 on August 1, what would be the combined value of the investments be on August 31?

