

Math 141

Version 1

Midterm

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Name	
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Time: 50 minutes

Multiple Choice (each question is worth 2 points)

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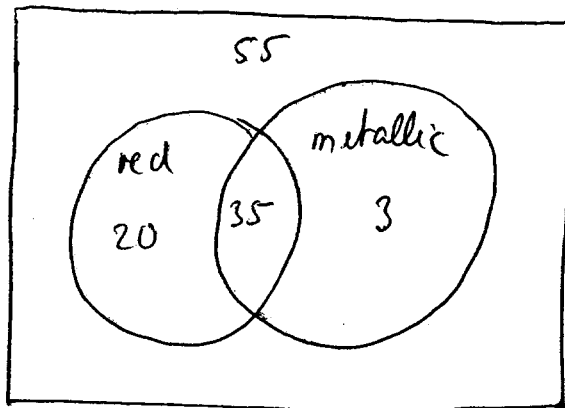
1. Which argument involves circular reasoning?
 - a) There is no evidence that this products causes heart attacks. Therefore it is perfectly safe.
 - b) Since the Bill of Rights guarantees freedom of speech, America's founding fathers would certainly have opposed any ban on pornography.
 - c) Since most people are in favor of the bill, it must certainly be a good law.
 - d) You'd better get there in time, since otherwise you'll be late.

2. *Jane will not vote for a candidate who opposes a ban on handguns.*
 Assuming this statement is true, which of the following statements is false?
 - a) Jane supports a ban on hand guns.
 - b) Jane may vote for a candidate who does not own a handgun.
 - c) Jane might vote for Senator Jones who supports a ban on handguns.
 - d) If Senator Jones opposes a ban on hand guns, then Jane will vote for her.

3. Which of the following sets are **not** disjoint?
 - a) Mothers and sons
 - b) Mothers and fathers
 - c) Fathers and daughters
 - d) Mothers and daughters

4. Use this Venn diagram, which describes the cars on a used car lot, to answer the question:
 How many cars on the lot are not red?

- a) 35
- b) 58
- c) 55
- d) 38



5. If a Norwegian krone is worth \$7.06, what is the value of \$1 in kroners?

- a) 0.142 kronas
b) 0.498 kronas
c) 0.706 kronas
d) 7.06 kronas
6. Two cities are 379 km apart. Convert this distance to miles to the nearest tenth.(1 mile = 1.6093 km)
- a) 346.6 miles
b) 235.5 miles
c) 609.9 miles
d) 146.3 miles
7. Suppose you have 6 striped socks and 4 red socks in a drawer. How many socks must you take from the drawer to be certain of having at least a pair of striped socks?
- a) 3
b) 5
c) 6
d) 7
8. If 50% of the students in your class are men and 20% of the students have blond hair, which of the following describes the percentage of students in your class who are men with blond hair?
- a) $50\% + 20\% = 70\%$
b) $50\% * 20\% = 10\%$
c) $50\% - 20\% = 30\%$
d) The percentage cannot be determined from the given information.
9. The after tax price of a bicycle is \$237.42. If a 7% sales tax was charged, what was the pre-tax price of the bicycle?
- a) \$220.80
b) \$221.89
c) \$226.95
d) \$254.04
10. How many years would it take a worker making \$16.00 per hour to earn \$8,000,000, assuming she works 260 8-hour days per year?
- a) 57 years
b) 240 years
c) 80 years
d) 2740 years
11. The actual height of a building is 221 feet. A student reports the height to be 199 feet. Find the relative error of the student's measurement.
- a) -22%
b) -1000%
c) -11.1%
d) -10.0%
12. Which of the following is an example of a random error?

- a) In a written survey, people sometimes make errors filling out the form
- b) A telephone survey will not accurately reflect the opinions of people who do not have telephones.
- c) Measurements are taken using an inaccurate scale that always reports a smaller weight than the correct weight.
- d) At a clinic, people are wearing shoes when their heights are measured.

For the next question refer to this table:

1998-1999 Median Income

State	Income	Index
Alabama	\$36,640	117.6
Arkansas	\$29,019	93.2
Louisiana	\$32,566	104.5
Mississippi	\$31,152	100.0

Source: US Census Bureau

13. Identify the reference value.

- a) \$36,640
- b) \$29,019
- c) \$32,566
- d) \$31,152

14. The Consumer Price Index was 130.7 in 1990 and 172.8 in 2000. If a person earned 20,500 in 1990,

how much did he need to earn in 2000 to maintain the same standard of living?

- a) \$15,505
- b) \$18,906
- c) \$27,103
- d) \$33,053

Written answers: (6 points each)

15. The statement is: *If today is Monday, then Mario is home.* Find the:

- 1) inverse
- 2) converse
- 3) contrapositive

16. Suppose water flows from a shower at a rate of 0.44 cubic feet per minute. Do you use more water by taking an 8-minute shower or by filling a bathtub with 0.45 cubic yards of water, and by how much?

(1 yard = 3 feet)