

MAT 1190 Final Exam Review

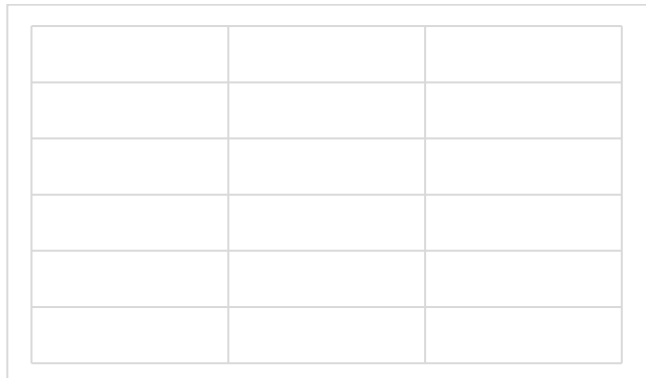
1. Becky buys a car for \$17,000 in 2018. The value of the car decreases by \$1,500 every year.
- a. Complete the following table

year	2018	2019	2020	2021	2022
value					

- b. Draw a graph showing how the value of the car changes: label x -axis 'years since purchase' and y -axis 'value of car.'
- c. What is the slope of this graph? What does the slope tell you?
- d. Find the equation of the line.
- e. What is the value of Becky's car after 18 months?
- f. How long until Becky's car is valued at \$10,000?
2. A NYC taxi charges an initial charge of \$2.50 and then an additional \$2 for every mile traveled.
- a. Complete the following table.

Distance	Cost
0 mile	
1 mile	
2 miles	
3 miles	
4 miles	

- b. Create a scatter diagram with x -axis Distance and y -axis Cost. Label a scale on each axis.

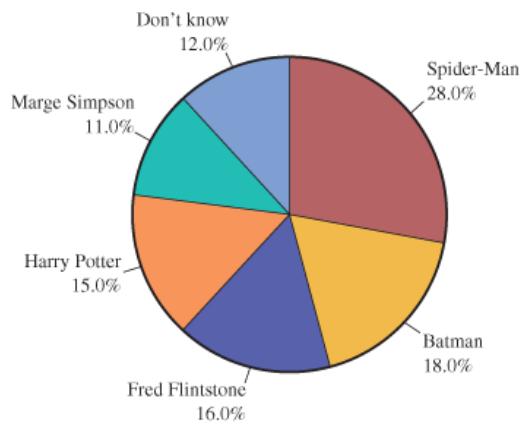


- c. Is the sequence in the right column linear or exponential?
- d. Find the y -intercept. What does it represent?
- e. Find the slope of the line connecting the points in the scatter diagram.
- f. Write an equation relating x and y .
- g. Use your equation to find the cost of a 50-mile ride.
- h. Use your equation to find the distance of a \$23 ride.

3. Francine wants to invest \$1000 and is deciding between three choices. Her first option is a simple interest of 3%. Her second option is to invest at 2% compounded monthly. Her third option is to invest 2.5% compounded semi-annually. Complete the following table. Which option should she pick in order to maximize her earnings from interest?

At the end of year	Option 1 value	Option 2 value	Option 3 value
0			
1			
2			
3			
4			

4. The article “Fred Flintstone, Check your policy” (*The Washington Post*, October 2, 2005) summarized the results of a survey of 1000 adults conducted by the Life and Health Insurance Foundation for Education. Each person surveyed was asked to select which of five fictional characters, Spider-Man, Batman, Fred Flintstone, Harry Potter, and Marge Simpson, he or she thought had the greatest need for life insurance. The resulting data are summarized in the pie chart below:



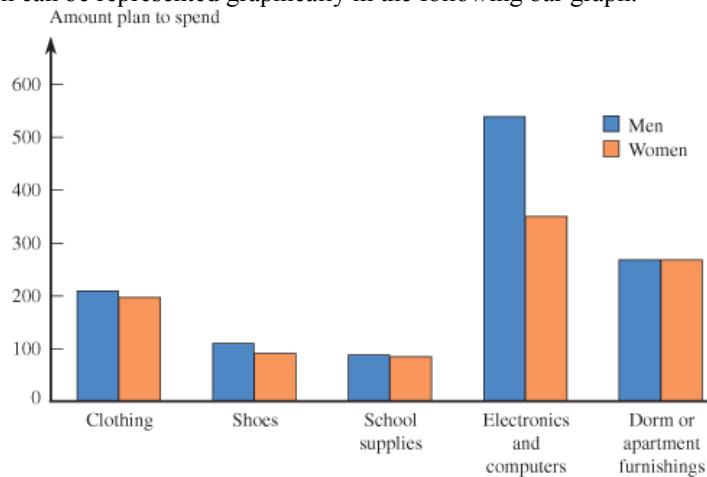
- Which fictional character seems to be the most in need of life insurance?
 - Which fictional character seems to be the least in need of life insurance?
 - How many degrees make up the angle for the sector representing Batman?
 - How many degrees make up the angle for the sectors representing Harry Potter or Marge Simpson?
 - Based on the sample of 1000 adults, how many selected Fred Flintstone?
5. In a picture, a woman measures 2.1 cm. Her actual height is 1.70 m. She is standing beside a tree that measures 8.1 cm in the picture. What is the actual height of the tree? Round your answer to the nearest tenth of a meter.
6. Suppose that a winter coat is listed as 40% off, with a sale price of \$180.
- What was the original selling price?
 - Suppose you have a coupon which says “Additional 10% off sale items” that you decide to apply

- towards your coat purchase. What would be the new sale price?
- c. If sales tax is 6.615%, find the amount of tax on the coat purchase after applying the coupon discount, and the total cost including tax.

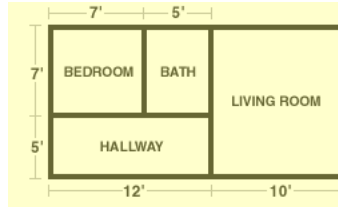
7. The National Retail Federation's 2008 *Back to College Consumer Intentions and Actions Survey* (www.nrf.com) asked each person in a sample of college students how much they planned to spend in various categories during the upcoming academic year. The average amounts of money (in dollars) that men and women planned to spend for five different types of purchases are shown in the accompanying table.

Type of Purchase	Average for Men	Average for Women
Clothing and Accessories	\$207.46	\$198.15
Shoes	\$107.22	\$88.65
School Supplies	\$86.85	\$81.56
Electronics and Computers	\$533.17	\$344.90
Dorm or Apartment Furnishings	\$266.69	\$266.98

This information can be represented graphically in the following bar graph:



- a. What does the graph generally indicate about the difference in average amount of money spent between male and female college students?
- b. Which purchase category shows the biggest discrepancy between the average spending of male and female college students?
- c. Which purchase category shows the lowest discrepancy between the average spending of male and female college students?
- d. In which category did the college students spend the most? How much?
- e. What is the total amount of money that an average male college students spends? What about the average female student?
- f. Find the mean value that college students spend per category.
8. A couple just bought a new house which has old carpeted floors that they really dislike. They decide to remove the carpets and replace them with laminated flooring in both living room and hallway. You are given that 3 ft = 1 yd.



- a. How many square feet of laminate floors will be needed?
 - b. How many square yards of laminate floors will be needed?
 - c. The couple can hire professional workers from Lowe's or Home Depot to finalize their flooring project. If labor is hired in addition to buying the raw material, a discounted price becomes available. The area was estimated at 200 square feet. How many additional square feet of laminate flooring was ordered?
 - d. Suppose that the discounted cost per square foot of laminate flooring was \$2.5. How much would be spent on laminate flooring at this price if labor is hired?
 - e. Find the dollar value of the wasted laminate flooring.
 - f. If it takes 1.2 hour to install 50 square feet of laminate flooring, how long is it going to take for the work to be concluded?
9. If driver A is driving at a rate of 35 miles in 30 minutes, and driver B is driving at a rate of 65 miles an hour, which is faster?
10. You are tired at the end of the term and decide to borrow \$500 to go on a trip to Whatever Land. You go to the bank and borrow the money at 11% for 2 years.
- a. Find the interest you will pay on the loan.
 - b. Find the future value of the loan?
 - c. Divide the future value by the number of months to find the monthly payment.
11. Today's menu at your college's canteen includes a choice of chicken, fish, beef or tofu for the main dish and a choice of cake, ice cream or pudding for dessert.
- a. Use a tree diagram to find the sample space for the experiment of choosing one main dish and one dessert for your lunch.
 - b. What is the probability that you choose chicken and cake for lunch?
 - c. What is the probability that you choose a fish dish?
 - d. What is the probability of getting cake or pudding for dessert?
 - e. What is the probability that you pick a main dish other than beef and pudding as a dessert?
12. A candle store sells jar candles and pillar candles. Once lit, a jar candle will burn for a mean (or average) of

25 hours and a pillar candle will burn for a mean (or average) of 95 hours. These durations are normally distributed as summarized in the table below.

Candle type	Mean duration	Standard deviation
Jar candle	$\mu = 25$ hours	$\sigma = 2.5$ hours
Pillar candle	$\mu = 95$ hours	$\sigma = 7.5$ hours

Andrei had cinnamon-scented jar candle that burned for 30 hours and a berry-scented pillar candle that burned for 88 hours. Keeping in mind that burning time is normally distributed, relative to its type, which candle burned faster? What is your reasoning?