1. Use your calculator for the following; you do not need to show work. [2 pts each]

(a) \( \frac{3}{4} \div \frac{1}{2} = \)
(b) \( 2.1 \cdot 2.38 = \)
(c) \( \frac{1}{2} + \frac{3}{18} = \)
(d) Write \( 0.7 \) as a fraction.
(e) Write \( \frac{9}{7} \) as a decimal.
(f) Express \( \frac{3}{22} \) as a percent.
(g) Write \( \frac{22}{7} \) as a mixed number.
(h) 8 is 44% of what number?

2. The teacher in a College Math class was forced to reprimand one of her students for insubordination; she chose to enact this punishment in the form of a dunce cap. She wanted to make the dunce cap 12 inches tall, with a radius of 5 inches, and a slant-side length of 13 inches. How much paper does she need to accomplish this? For your convenience, the formulas for volume and surface area of a cone are reprinted to the right. Be sure to choose which formula you use, and how you use it, carefully. [8 pts]

3. A student conducted an informal survey of 300 people on campus, asking them what they were most worried about in the bad economy, with the results compiled in the circle graph below. [3 pts each]

(a) Use your protractor to measure the angle represented by the ‘housing’ wedge.
(b) What percentage of the respondents said ‘housing’?
(c) How many of the 300 people said ’getting a job’?

4. A doctor records the weight, in pounds, of each one of his patients in a day when he does physicals for 15 different men. Find the (a) mean, (b) median, (c) mode, (d) standard deviation, and (e) percent uncertainty, of the data. [2 pts each]

160, 155, 180, 199, 201, 200, 199, 212, 177, 175, 180, 154, 167, 200, 199

(f) Suppose you were asked to report the ‘average’ weight of the doctor’s male patients. Considering our discussion of ‘average’ in class, which of the three (mean, median, or mode) do you think is the worst choice of answer? Give a short (one sentence) explanation why. [6 pts]

5. Suppose that a researcher first measures the height of everyone who is at a certain mall, at the same time, for Survey A. Then, he goes to an NBA players’ basketball meeting attended by several hundred players, and measures the height of everyone there, for Survey B. Describe, in your own words, your expectation for the comparison between the mean and standard deviation in the two surveys. [6 pts]
6. What is the length, in centimeters, of a line which measures 2.8 inches? Show your work. [6 pts]

![Ruler showing length of 2.8 inches](image)

7. Suppose that in the figure below, the angles A and B have the same measurement. Find the length of the side x. [7 pts]

![Triangle with angles A and B](image)

8. A shark researcher counts the teeth in a large number of specimens of a certain species of shark. He finds that the number of teeth he recorded varied approximately according to a normal distribution, with a mean of two thousand, and a standard deviation of one hundred twenty. [4 pts each]

   (a) What percentage of the sharks had between 2120 and 2240 teeth?
   (b) What percent had fewer than 1880 teeth?
   (c) What percentage had between 1880 and 2000?

![Normal distribution graph](image)

9. Solve the following equations by any means you like, including algebraic manipulation or by graphing. Show all work, including a picture of the graph if necessary. Make sure to look for all possible solutions, and to check each answer you get. If there is no solution, write no solution. [4 pts each]

   (a) \(2x + 2 = -3\)
   (b) \(x^3 - x^2 = 0\)
   (c) \(2x^2 + 3 = 2\)

10. A rectangular piece of wood has a semicircle cut out of it (see image below). What is the perimeter of the remaining wood panel? [8 pts]

![Rectangular piece of wood with semicircle](image)