

No books, notes or graphing calculators. SHOW ALL YOUR WORK. ANSWER ALL QUESTIONS.

- (10) 1. A certain amount is invested in a Certificate of Deposit under 5% interest rate. When the CD matures in 5 years, it reaches the value of \$6420.
- [a]. Assuming that the value of the account grows according to an exponential model, write a formula for the function $S(t)$ representing the value of the account at the time t .
- [b]. What was the amount of the initial deposit?

- (10) 2. Sketch the graph of the function

$$f(x) = \frac{\cos 2x}{2}$$

- Indicate the domain and range of $f(x)$.
- On the graph of $f(x)$ mark at least 2 points where the graph intersects the x -axis.
- What is the period of $f(x)$?

Make sure to show all your work:

- *indicate intermediate steps if you used "stretching";*
- *if you convert to the standard sinusoidal form, write down the form and indicate the parameters.*

- (2) 3. **Bonus.** (No partial credit for this problem.)
Sketch the graph of the function $f(x) = |\cos(|x|)|$.