Calculators required 6. Estimate x to four decimal places: 1. What is the midpoint between (1.1, 6.7) and (-3.8, 5.4)?

7. Consider the function

40

$$f(x) = x^6 - x^4 - 5x^3 + x^2 + 6x - 5$$

- 2. What is the distance between (1.1, 6.7) and (-3.8, 5.4)? Use a graphing calculator to answer the following:
 - (a) Where is there a local maximum on the the interval [-2, 2]?
- 3. Consider $f(x) = -2x^2 + 11x 9$. On what interval is this function increasing?
- (b) Where is there a local minimum on the the interval [-2, 2]?
- (c) On what interval is it decreasing?
- 4. Use your calculator to approximate $\cos(40^\circ)$ to four decimal places.
- (d) Name 3 locations where f(x) = 0
- 5. A company that produces surfboards (a seasonal product whose sales goes up and down like sine and cosine waves) uses the following model to estimate sales S (in thousands of units):

$$S = 24.1 + 0.35t + 5.3\sin\left(\frac{\pi t}{7}\right)$$

where t is the time in months, with t = 1 representing January 2008 (For example, it predicts 28,944 units sold for February 2008). Use this model to predict the sales for October 2008.

- (e) Where is the y intercept (that is, what is f(0))?
- (f) Is this a one-to-one (injective) function?
- 8. What is the range of g(x) = -5|x 1| + 7?

9. Use the calculator to find models to fit the following data:

year	profit
1	3.2
2	6.3
3	10.1
4	15.3
5	18.2

(a) Find the linear regression line

(b) Use this linear model to predict the profit for year 6

(c) Find a quadractic model for these data

(d) Use the quadratic model to predict the profit for year 6