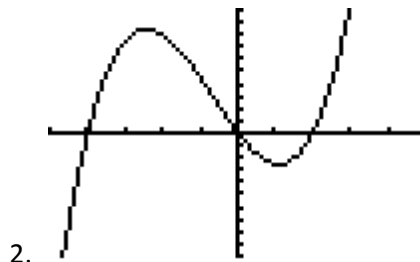
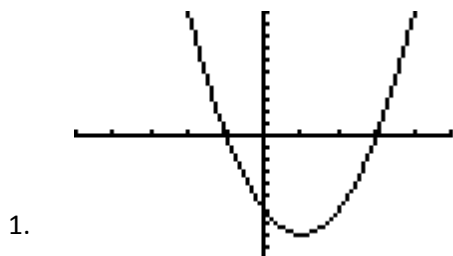


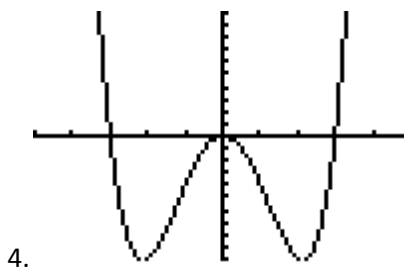
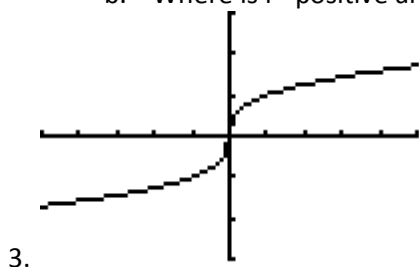
Given a graph of f' , determine the following: (see graphs on board)

- Where is f increasing/decreasing?
- Where is f concave up/down?
- Where does f have a max/min?
- Where does f have a point of inflection?



Given a graph of f , determine the following: (see graphs on board)

- Where is f' positive and negative?
- Where is f'' positive and negative?



Find the following for the functions listed in numbers 5-8:

- Increasing and decreasing intervals
- Relative maximums and minimums
- Concave up and down intervals
- Points of Inflection

5. $f(x) = \frac{3}{2x+4}$

6. $f(x) = 2x^2 + 7x - 4$

7. $f(x) = 4x^3 + 6x$

8. $f(x) = x^3 - 2x^2 + x + k$

**For this question, also find the value of k if the maximum is 7

**Find the value of k if the minimum is 1

9. If $f''(x) = x^2(2x + 4)(x - 5)$, find the x-coordinate of the inflection points and give the intervals on which the function is concave up and concave down.

10. Find the equation for the tangent line at $x = 2$. Use this equation to approximate the x-coordinate of a zero of f:

a. $f(2) = 4, f'(2) = 6$

b. $f(2) = 1, f'(2) = -3$

11. If $f(x) = e^{3x^2} - 2x$, where is the slope of the tangent line equal to 2? (CALCULATOR)

The following review questions are over prior material:

12. Find $\lim_{x \rightarrow \infty} \frac{(x+4)(3x-7)}{(2x+3)(x+2)}$

13. If $f(x) = \tan 2x$, what is $f'\left(\frac{\pi}{4}\right)$?

14. What is the slope of tangent line to the graph $y^2 - 3xy + 2x^2 = 4$ at the point (1, 2)

15. A particle moves along the x-axis so that its position at time $t=0$ is given by $x(t) = 2t^2 - 3t + 1$. For what value of t is the velocity equal to zero? For what value of t does the acceleration equal zero?