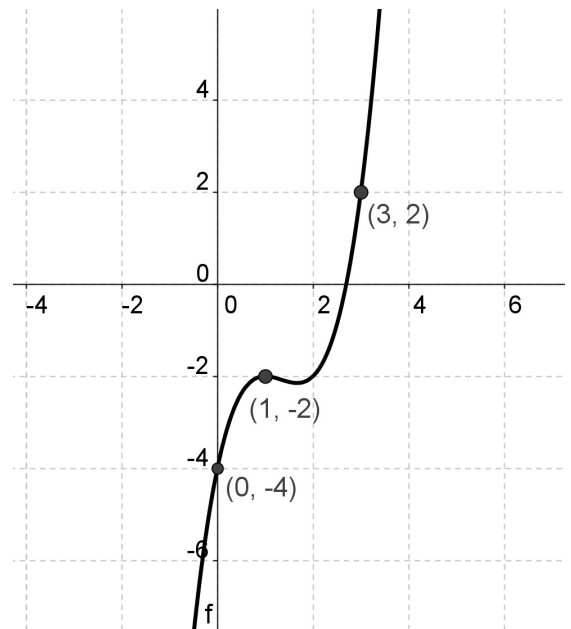


3.1 – 3.5 Quiz

1. Find a polynomial function $f(x)$ such that $f(2) = 0$, $f(6) = 0$ and $f(0) = 15$.
2. Suppose g is a degree four polynomial in the form $g(x) = x^4 - 2x + 3$
 - a. What can you say about $g(x)$ as x takes on large positive values?
 - b. What can you say about $g(x)$ as x takes on large negative values?

The graph of $f(x) = x^3 - 4x^2 + 5x - 4$ is shown to the right. Use it to answer the following questions

3. Determine the average rate of change between the points $(1, f(1))$ and $(3, f(3))$.
4. Draw the secant line between the points $(1, f(1))$ and $(3, f(3))$. Determine the equation of the secant line.



5. Plot an arbitrary point $(b, f(b))$ on the graph. Determine the slope of the secant line between $(b, f(b))$ and $(0, -4)$.
6. As b moves closer to 0, what value will the slope of the secant line approach?

7. Find the equation of the line tangent to the graph $g(x) = 5x^2 - 8x - 10$ at the point $(-1, 3)$

8. What is the slope of the tangent line from problem #7?

9. Suppose that $g(x) = 3x^3 - 2x^2 + 5x - 8$. Expand $g(x)$ in powers of $(x-3)$.

10. Let $g(x) = x^8$. Determine the equation of the line tangent to g at $(b, f(b))$