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15. For what values of the constants a and b is $(1, 6)$ a point of inflection of the curve $y = x^3 + ax^2 + bx + 1$? Draw boxes around your values of a and b .

$$y' = 3x^2 + 2ax + b$$

6 pts

$$y'' = 6x + 2a = 0 \text{ for } x=1 \text{ if } \boxed{a = -3}$$

Need $(1, 6)$ on the curve.

$$1^3 + (-3) \cdot 1^2 + b \cdot 1 + 1 = 6$$

$$1 - 3 + 1 - 6 = -b$$

$$\boxed{b = 7}$$

16. The graph of a function f is shown in Figure 2. If Newton's Method is used to locate a root of the equation $f(x) = 0$, and the initial approximation is $x_1 = -3.5$, draw a sketch to indicate how to obtain the second approximation x_2 . Label the approximate value x_2 on the graph.

6 pts

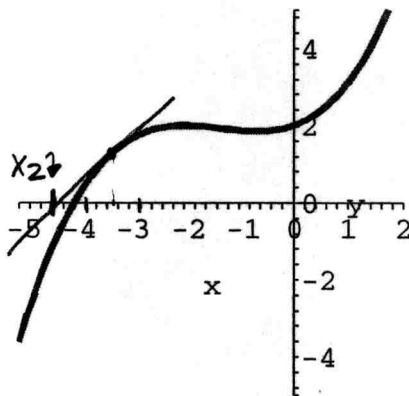


Figure 2: Graph of $y = f(x)$