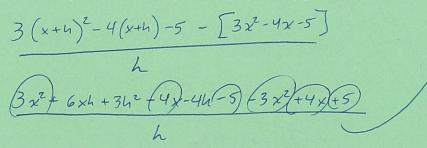
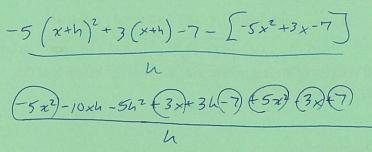
12.3 Homework

1) Find an equation for the slope of the graph at any point of $f(x) = 3x^2 - 4x - 5$



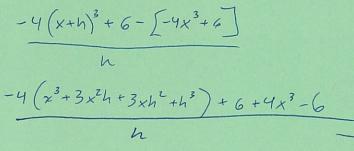
 $\frac{h(3h+6x-4)}{h}$

2) Find an equation for the slope of the graph at any point of $f(x) = -5x^2 + 3x - 7$



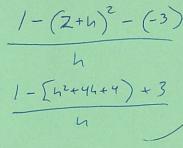
 $\int_{1}^{2} \frac{1}{h} \left(-5h-10x+3\right)$ $= \frac{1}{h}$

3) Find an equation for the slope of the graph at any point of $f(x) = -4x^3 + 6$



h \(\frac{4\chi^3 - 12\chi^2 - 12\chi \text{4}^2 - 94^3 \chi \text{4} \text{9}\text{4}\text{7}\text{3}\text{6}\text{9}\text{9}\text{3}\text{6}\text{9}\text{3}\text{6}\text{9}\text{3}\text{6}\text{9}\text{3}\text{6}\text{9}\text{3}\text{6}\text{9}\text{9}\text{3}\text{6}\text{9}\text{3}\text{6}\text{9}\text{3}\text{6}\text{9}\text{3}\text{6}\text{9}\text{3}\text{6}\text{9}\text{9}\text{3}\text{6}\text{9}\text{9}\text{3}\text{6}\text{9}\text{9}\text{3}\text{6}\text{9}\text{9}\text{3}\text{6}\text{9}\text{9}\text{3}\text{6}\text{9}\text{9}\text{3}\text{6}\text{9

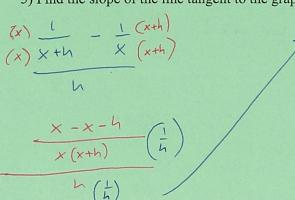
4) Find the slope of the line tangent to the graph $y = 1 - x^2$ at the point (2, -3).



- (-h-4)

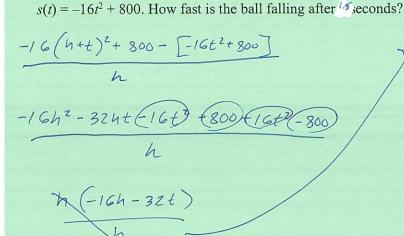


5) Find the slope of the line tangent to the graph $f(x) = \frac{1}{x}$ at the point $\left(3, \frac{1}{3}\right)$



 $\frac{x}{xh(x+h)}$ $\frac{-1}{x(x+h)}$

6) Abby drops a ball from a tower that is 800 feet high. The position of the ball after t seconds is given by



7) An outfielder throws a ball toward home plate with an initial velocity of 80 feet per second. Suppose the height h of the baseball, in feet, t seconds after the ball is thrown is modeled by $h(t) = -16t^2 + 80t + 6.5$.

a. Find an expression for the instantaneous velocity v(t) of the baseball.

$$-16 (h+t)^{2} + 80 (h+t) + 6.5 - \left[-16t^{2} + 80t + 6.5\right]$$

$$h$$

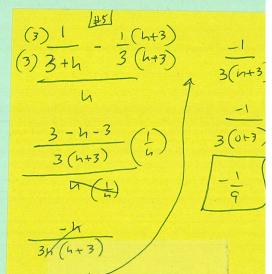
$$-16h^{2} - 32ht - (6t^{2}) + 30h + (80t) + 6.5 + (6t^{2}) + 80t + 6.5$$

$$h$$

$$b \left(-16h - 32t + 86\right)$$

$$b \left(0 + 32t + 86\right)$$

$$b \left(0 + 32t + 86\right)$$



b. How fast is the baseball traveling after 0.5 second?

c. For what value of t will the baseball reach its maximum height?

Quadratic Questions!

d. What is the maximum height of the baseball?