

WS #3-5

Polynomial and Rational Inequalities

1.  $x^2 \leq 4x + 12$

2.  $x^4 > x$

3.  $\frac{4x+5}{x+2} \geq 3$

4.

Pounds of cookies (in hundreds), $x$	Profit, $P$ (in dollars)
0	-20,000
50	-5990
75	412
120	10,932
200	26,583
270	36,948
340	44,381
420	49,638
525	49,225
610	44,381
700	34,220

Tami is considering leaving her \$30,000 a year job and buying a cookie company. According to the financial records of the firm, the relationship between pounds of cookies and profit is shown above.

- Draw a scatter plot with pounds of cookies as the independent variable.
- Find a quadratic function of best fit
- Use your function from above to determine the number of pounds of cookies that she must sell for the profits to exceed \$30,000 a year and therefore make it worthwhile for her to quit her job.
- How many pounds of cookies should Tami sell to maximize her profits?
- What is the maximum profit that Tami can expect to make?