

What you will learn about:
Inequalities in One Variable

1. Suppose that plans for a fundraising raffle shows that profit P will depend on ticket price x according to the function $P(x) = -2,500 + 5,000x - 750x^2$. A graph of profit as a function of ticket price is shown here.

Inequality
(Not equal)

$>$ greater than

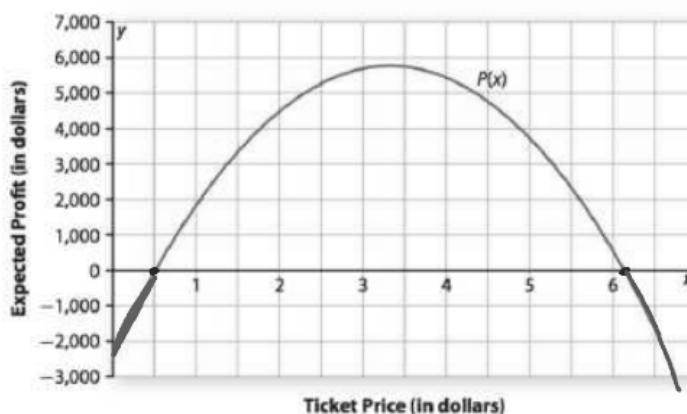
$<$ Less than

\geq greater than or equal to

\leq Less than equal to

\neq Not equal

Raffle Fundraiser Profit



- a. Use the graph to estimate solutions of the inequalities.

i. $-2,500 + 5,000x - 750x^2 > 0$

$P(x) > 0$

$0.5 < x < 6.25$

Imply
And

ii. $P(x) < 0$

$0.5 > x$ or $x > 6.25$

$0 < x < 0.5$ or $x > 6.25$

Symbolic

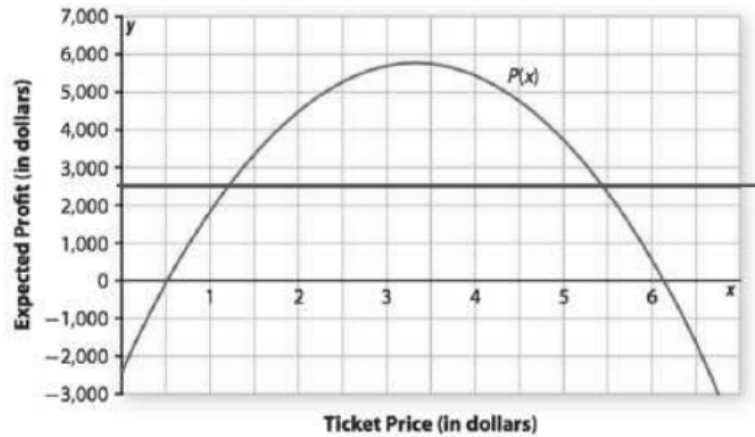
$>, <, \geq, \leq$

Interval Notation

$[] ()$

$[) (]$

2. If the fund raising event wants to raise \$2,500 use the graph to answer the following questions.



- a. What ticket price will give you a profit of exactly \$2,500?
- b. What ticket price(s) will yield a profit greater than \$2,500?
- Symbolic Notation
 - Interval Notation
- c. What ticket price(s) will yield a profit less than the target amount?
- Symbolic Notation
 - Interval Notation