Mistake from 11-2-26 Alg 2

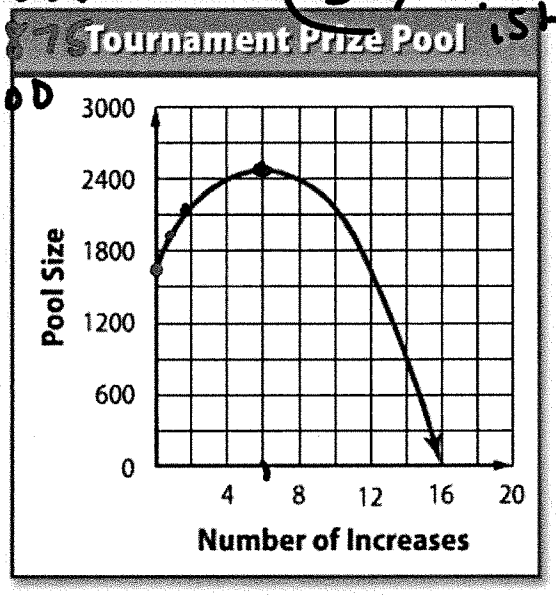
Ex 4

Fee · number = income
20 · 80 = 1600
25 · 75 = 1875
30 · 70 = 2100

(50, 2500 ish)

- Eddie is organizing a charity tournament. He plans to charge a $20 entry fee for each of the 80 players. He recently decided to raise the entry fee by $5, and 5 fewer players entered with the increase. He used this information to determine how many fee increases will maximize the money raised.

  The quadratic function at the right represents this situation. The tournament prize pool increases when he first increases the fee, but eventually the pool starts to decrease as the fee gets even higher.



x = $5.00

$y = (20+5x)(80-5x)$

correction: should be
$y = (20+5x)(80-5x)$

found the mistake: new cost = 20 + 5x
sec: $5 each increase
thanks Violet for the suggestion (11)

ewe
$20+5x$
$80-5x$

$-100x - 25x^2$

$1600 + 400x$

$1600 + 300x - 25x^2$

$y = -25x^2 + 300x + 1600$

vertex $x = \frac{-b}{2a} = \frac{-300}{2(-25)} = \frac{300}{50} = 6$

He should charge 6 $5 increases.
Max = f(6) = $2500 ish
so $50.00

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x. PRob. 4 A

rooms ? ? ? ? x = $5 increases

Guided Practice

4. Suppose a different tournament that Eddie organizes has 120 players and the entry fee is \$40. Each time he increases the fee by \$5, he loses 10 players. Determine what the entry fee should be to maximize the value of the pool.

$y = (40+5x)(120-10x)$

$= \frac{280}{2 \cdot 10} =$

Same problem as ex 4; Should have used 5x for the cost of x $5 increases.

$40 + x$

$120 - 10x$

$-40x - 10x^2$

$4800 + 120x$

$y = 4800 - 280x - 10x^2$

ewe $40 + 5x$

$120 - 10x$

$-40x - 50x^2$

$4800 + 600x$

$4800 + 200x - 50x^2$

$y = -50x^2 + 200x + 4800$

vertex $= \frac{-b}{2a} = \frac{-200}{2(-50)} = \frac{-200}{-100} = 2$

He should charge 2 x \$5 increase so \$50.00

$f(2) = \$5000$ = max income