

Second Price Auctions

The highest bidder wins but the price paid is the second-highest bid



Second Price Auctions

- *Players*: n bidders.
- *Types*: Each bidder i 's type is her valuation is v_i .
- *Strategies*: bidder i 's maximal bid is b_i .
- *Payoffs*:
$$u_i(b_1, \dots, b_n, v) = \begin{cases} v_i - \underline{b}_i & \text{if } b_i > \underline{b}_i \\ 0 & \text{if } b_i \leq \underline{b}_i \end{cases}$$
where, $\underline{b}_i = \max \{b_j : j \text{ different from } i\}$.

Weakly Dominant Solution

The strategy profile $(b_1^*, \dots, b_n^*) = (v_1, \dots, v_n)$ is the unique weakly dominant solution, and hence a Nash equilibrium.

| | $\underline{b}_i < b_i$ or $\underline{b}_i = b_i$ & i wins | $b_i < \underline{b}_i < v_i$ or $\underline{b}_i = b_i$ & i loses | $\underline{b}_i > v_i$ |
|-------------|----------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------|
| $b_i < v_i$ | $v_i - \underline{b}_i$ | 0 | 0 |
| $b_i = v_i$ | $v_i - \underline{b}_i$ | $v_i - \underline{b}_i$ | 0 |

| | $\underline{b}_i \leq v_i$ | $v_i < \underline{b}_i < b_i$ or $\underline{b}_i = b_i$ & i wins | $\underline{b}_i > b_i$ or $\underline{b}_i = b_i$ & i loses |
|-------------|----------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------|
| $b_i = v_i$ | $v_i - \underline{b}_i$ | 0 | 0 |
| $b_i > v_i$ | $v_i - \underline{b}_i$ | $v_i - \underline{b}_i (< 0)$ | 0 |

In sum, bidding $b_i = v_i$ yields at least as high a payoff as bidding $b_i > v_i$ or $b_i < v_i$ for any opponents' bids.

Generalized Second Price Auctions were Adopted for Ads Bidding



laptops

Sign in

YAHOO!

Web Images Video News More Anytime Languages English x

Ads

Ads related to: laptops

Chromebook by Google - The new Chromebooks are here.
www.google.com/Chromebook
If you love apps on your laptop, You Chromebook. Find Yours.
Switch to Chromebook · App Store Access · Long Battery Life · Android Compatible
Latest Chromebook offers · \$100 off Google Pixelbook
Chromebook Features · Apps Have Arrived
Do More With Chromebooks · Find Yours

New Year's Laptop Sale - Fry's - Save Big on Laptop Computers
images.frys.com/NewYearsSale
Sign up to Get your Instant Code · Same Day Local Delivery
In-Store Pickup · Fry's Gift Cards · 14-Day Return Policy · Free Shipping

Laptop Computers - Holiday Deals At Office Depot®
www.officedepot.com/Technology/Laptops
Save On Laptop Computers Online At Office Depot®. Free Delivery On Orders \$25+
24/7 Customer Service · Free In-Store Pickup · Earn Rewards & Save More
Types: 2-in-1, Touch Screen, Chromebooks, Gaming, Ultrabooks, Refurbished, Rugged
55% Off Quality Printers · Shop Hot Tech Deals
Office Depot Rewards™ · Chromebooks
Touch Screen Laptops · \$130 Off Dell® Desktop PC

Less Weight. More Power - Less is More. LG gram
www.lg.com/laptops/gram
Longer Battery life than ever before. Coupled with Powerful Performance!
16GB RAM & 512GB SSD · Windows 10 Home · Touchscreen LCD Display · 15.6" Full HD IPS Screen
2017 gram Lineup · Where to buy LG gram

| | | |
|-----------------------------------------------------------|--------------------------------------------------------|------------------------------|
| HP 15-bs061st 15.6" Laptop ... Quill ▼ \$369.99 | IdeaPad 520 (15") Lenovo ▼ \$549.99 | HP S ax06 New \$221 |
| HP 17-bs061st 17.3" Laptop... Staples ▼ \$399.99 | Chromebook Newegg B... ▼ \$289.95 | HP L bw01 New \$28 |
| Apple MacBook A1342 13.3" ... Blebbly ▼ \$149.99 | Dell Inspiron 15 3000 (Int... Dell ▼ \$279.99 | |

Google

popsicle maker

Web Images Maps Shopping Applications More Search tools

About 1,410,000 results (0.40 seconds)

Ad related to popsicle maker

BPA Free Popsicle Molds - 6 popsicle molds for only \$12.55
www.amazon.com/popsicle-molds - ★★★★★ 566 seller reviews
Easy to clean, durable & no mess

Shop for popsicle maker on Google

Sponsored

| | | | | |
|-------------------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------------------|
| Zoku Single Pop Maker, R... \$24.95 Williams-Son... Special offer | Nonpro Popsicle Maker \$13.99 Target | Zoku Duo Quick Pop M... \$36.99 EverythingKit... | Zoku Quick Pop Maker \$49.99 Chef's Resou... | Zoku® Quick Pop Frozen T... \$69.95 Ploow & Hearh Special offer |
|-------------------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------------------|

Zoku Quick Pop Maker | Williams-Sonoma
www.williams-sonoma.com/products/zoku-quick-pop-maker/
Now you can create your own customized frozen pops, including cream-filled varieties, in as little as seven minutes. Simple and easy to use, our freezer ensures ...

Zoku | Quick Pop Maker
www.zokuhome.com/pages/products-quickpop-maker
The patented Zoku Quick Pop™ Maker freezes ice pops in as little as seven minutes ...

Ads

Ice+maker
www.go-dove.com/ice-maker
Best Ice+maker In The Market!
Online Auction, Bidding Closes 7/11

2013 Top Popsicle Molds Best
www.shop.kitchenkool.com/
Huge Selections - Compare & Save on
Top-Rated Popsicle Molds Best Now!

The Best Popsicle Machine
www.finamac-usa.com/popsiclemachine
World Leader in Popsicle Machines
From 200 to 8000 sticks/hour.

Popsicle Maker at Walmart
www.walmart.com/Appliances
Save On Popsicle Maker at Walmart.
Free Shipping Site to Store.
Walmart has 7,881 followers on
Google+

See your ad here