

Land of Merchants: Customer Preference Math Breakdown

Written by PineCrumb

Customer Example: Frank the Orc

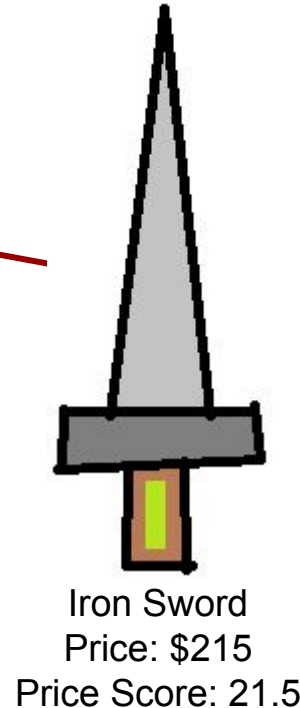
Customer



Name: Frank
Species: Orc
Target B Score: 20

- He has a “target base score of 20”: This translates to *“I’m looking for an item that at least has a score of 20 in raw material”*
- Frank is an **Orc**, and Orcs are a **species** that generally like resources that is strong.

Frank walks into a player's store and sees a sword.
He then starts judging what he thinks of it.



Calculate **P Score** and **B Score**

P Score = "Perceived Score" (customer specific)

B Score = "Base Score" (non customer specific)

Customer



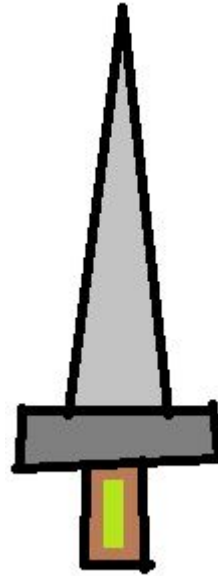
Name: Frank

Species: Orc

Target B Score: 20

$$\text{P Score} = 12 + 1.25 + 0.5 + 16 = \underline{\underline{29.75}}$$

$$\text{B Score} = 6 + 1 + 0.5 + 8 = \underline{\underline{15.5}}$$



Iron Sword

Price: \$215

Price Score: 21.5

Blade (iron)

$$4 (\text{ResourceMult}) * 1.5 (\text{ShapeMult}) * 2 (\text{SpeciesMult}) = 12$$

$$4 (\text{ResourceMult}) * 1.5 (\text{ShapeMult}) = 6$$

Guard (stone)

$$2 (\text{ResourceMult}) * 0.5 (\text{ShapeMult}) * 1.25 (\text{SpeciesMult}) = 1.25$$

$$2 (\text{ResourceMult}) * 0.5 (\text{ShapeMult}) = 1$$

Handle (wood)

$$1 (\text{ResourceMult}) * 0.5 (\text{ShapeMult}) * 1 (\text{SpeciesMult}) = 0.5$$

$$1 (\text{ResourceMult}) * 0.5 (\text{ShapeMult}) = 0.5$$

Emerald (augmentation)

$$8 (\text{ResourceMult}) * 2 (\text{SpeciesMult}) = 16$$

$$8 (\text{ResourceMult}) = 8$$

Calculate PB Ratio

Customer



Name: Frank

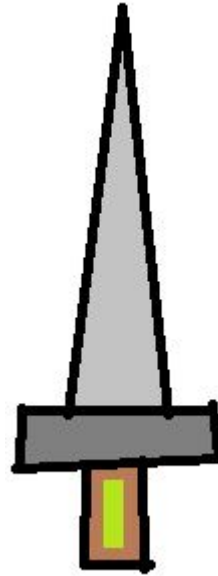
Species: Orc

Target B Score: 20

P Score = $12 + 1.25 + 0.5 + 16 = \mathbf{29.75}$

B Score = $6 + 1 + 0.5 + 8 = \mathbf{15.5}$

PB Ratio = P Score / B Score = $\sim \mathbf{1.919}$



Blade (iron)

$4 \text{ (ResourceMult)} * 1.5 \text{ (ShapeMult)} * 2 \text{ (SpeciesMult)} = 12$

$4 \text{ (ResourceMult)} * 1.5 \text{ (ShapeMult)} = 6$

Guard (stone)

$2 \text{ (ResourceMult)} * 0.5 \text{ (ShapeMult)} * 1.25 \text{ (SpeciesMult)} = 1.25$

$2 \text{ (ResourceMult)} * 0.5 \text{ (ShapeMult)} = 1$

Handle (wood)

$1 \text{ (ResourceMult)} * 0.5 \text{ (ShapeMult)} * 1 \text{ (SpeciesMult)} = 0.5$

$1 \text{ (ResourceMult)} * 0.5 \text{ (ShapeMult)} = 0.5$

Emerald (augmentation)

$8 \text{ (ResourceMult)} * 2 \text{ (SpeciesMult)} = 16$

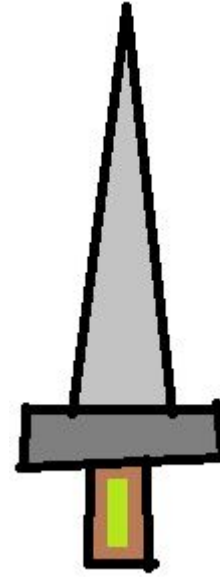
$8 \text{ (ResourceMult)} = 8$

Iron Sword

Price: \$215

Price Score: 21.5

Using these values to assess Frank's interest:



Iron Sword
Price: \$215
Price Score: 21.5

$$\text{P Score} = 12 + 1.25 + 0.5 + 16 = \underline{29.75}$$

$$\text{B Score} = 6 + 1 + 0.5 + 8 = \underline{15.5}$$

$$\text{PB Ratio} = \text{P Score} / \text{B Score} = \underline{\sim 1.919}$$

Step 1: Evaluate customer wealth interest

Customer



Name: Frank
Species: Orc
Target B Score: 20



Iron Sword
Price: \$215
Price Score: 21.5

Frank first checks to see if the sword is something he thinks is worth wanting.

The target item's b score is ratioed with the customer's target b score (a value directly correlated to their wealth), creating the **TB ratio** (target base score ratio).

If TB ratio < 1, the customer will default to disinterest.

Emoji	Name	TB Ratio	Thought as Text	Interested in item?
😞	Very disinterested	< 1	"This is too cheap for my tastes."	No
😬	Slightly Interested	>= 1	"I may be interested in this..."	Yes

1.293 → Slightly Interested

$$P \text{ Score} = 12 + 1.25 + 0.5 + 16 = \underline{\underline{29.75}}$$

$$B \text{ Score} = 6 + 1 + 0.5 + 8 = \underline{\underline{15.5}}$$

$$PB \text{ Ratio} = P \text{ Score} / B \text{ Score} = \underline{\underline{\sim 1.919}}$$

$$TB \text{ Ratio} = \text{Target B Score} / B \text{ Score} = \underline{\underline{\sim 1.293}}$$

Step 2: Evaluate the customer's interest

Customer



Name: Frank
Species: Orc
Target B Score: 20



Iron Sword
Price: \$215
Price Score: 21.5

Interested in the sword, Frank checks if he has **personal** interest in the sword beyond being valuable.

PB ratio is used to assess the customer's interest in the item. This ratio determines how much they want to buy the item

Emoji	Name	PB Ratio	Thought as Text	Wants to buy item?
😞	Very disinterested	$-\text{inf} \rightarrow 0.4$	"Wow, this is lame."	No
😐	Disinterested	$0.4 \rightarrow 0.8$	"Eh, whatever."	No
😊	Interested	$0.8 \rightarrow 1.2$	"Yeah, this will suffice."	Yes
😄	Pretty interested	$1.2 \rightarrow 1.5$	"This is just what I wanted!"	Yes
😍	Very interested	$1.5 \rightarrow 2$	"Wow, I want this!"	Yes
😱	Must buy	$2 \rightarrow \text{inf}$	"OMG I NEED this!!"	Yes

$$\text{P Score} = 12 + 1.25 + 0.5 + 16 = \underline{\underline{29.75}}$$

$$\text{B Score} = 6 + 1 + 0.5 + 8 = \underline{\underline{15.5}}$$

$$\text{PB Ratio} = \text{P Score} / \text{B Score} = \underline{\underline{\sim 1.919}}$$

$$\text{TB Ratio} = \text{Target B Score} / \text{B Score} = \underline{\underline{\sim 1.293}}$$

1.919 → Very interested

Step 3: Evaluate the customer's affordability



P Score = $12 + 1.25 + 0.5 + 16 = \underline{29.75}$

B Score = $6 + 1 + 0.5 + 8 = \underline{15.5}$

PB Ratio = P Score / B Score = $\sim \underline{1.919}$

TB Ratio = Target B Score / B Score = $\sim \underline{1.293}$

Price Ratio = Price Score / P Score = $\sim \underline{0.722}$

Since Frank is interested in the sword, he lastly checks if the price (the player's perceived value) match's his perceived value of it.

If at least interested, the customer observes the item's currency price, which is converted to score by evaluating item price / <currency unit>. This score is ratioed against the item's P score, creating the **price ratio**. This ratio determines their ability to buy the item (price ratios for respective interests are listed in Emoji item deciding).

Emoji	Range	Name	Price Ratio	Thought as Text	Gameplay	Can buy item?
😄💰	😊 → 😄	Cheap	$-\text{inf} \rightarrow 0.7$	"Wow, this item is CHEAP!"	They can afford the item because they deem it a steal.	Yes
😊💰	😊 → 😄	Good Price	$0.7 \rightarrow 1.1$	"This item is a great price!"	They can afford the item and they deem it a good price.	Yes
😬💰	😊 → 😬	Very Expensive 1	$1.1 \rightarrow 1.3$	"Man, this item's too expensive for me..."	They can't afford the item because they don't have enough money.	Will Haggle
😭💰	😬 → 😄	Very Expensive 2	$1.1 \rightarrow 1.3$	"NOOO I can't afford this!!"	They can't afford the item because they don't have enough money.	Will Haggle
😡💰	😊 → 😄	Too Expensive	$1.3 \rightarrow \text{inf}$	"This item is too expensive!"	They can't afford the item because they deem it too expensive.	No

Note: Gold Currency Unit = 10

0.722 → Good Price

Step 4: Assuming the player is fine with the transaction,
Frank will buy his sword!



While Frank's only influenced interest in the sword was his species, many more multipliers can be layered into the calculations, supporting as much complexity as Land of Merchants can feasibly give it's customers individual purchasing personality's.