

Retailer's and Manufacturer's Cost Based Pricing Formula

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General Equations

- The Basic Profit Equation
- $Z = PQ - VQ - F$

converts to

- The Basic Cost Based Pricing Formula

- $P = V + F/Q + Z/Q$

where

- $V + F/Q$ = average cost per unit or breakeven price
- Z/Q = the desired profit per unit

Typical Operating Statement & Profit

Revenue \$10 per unit x 20,000	\$200,000	
CoGS (total variable cost) \$4 per unit x 20,000	\$80,000	
Gross Profit	\$120,000	Markup = 60%
Fixed Costs \$50,000/20,000 = \$2.5 per unit	\$50,000	
Profit \$70,000/20,000 = \$3.5 per unit	\$70,000	ROS = 35%

Expected, Normal Profits Targeted each Period

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- Basic Pricing Formula
- $P = V + F/Q + Z/Q$
- $P = \$4 + \$50,000/20,000 + \$70,000/20,000$
- $P = \$4 \text{ per unit} + \$2.50 \text{ per unit} + \3.50 per unit
- $P = \$10 \text{ per unit}$

Retailer's Use Inventory Cost

You are the BOSS!

The Operating Statement and the Basic Profit Equation

- 1) gives your employees **TOO MUCH** information
- 2) is **TOO Complicated** for employees to use

You Tell Them to Follow The Markup Pricing Rule

Tell them

- 1) What the invoice cost is and what the target markup is
- 2) To take the Invoice Cost per Unit and Divide it by One minus the Target Markup

$$P = V / (1 - \text{Markup})$$

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Retailers Often Use

- Their variable cost (i.e., invoice of cost of the goods sold, V) and a Desired Markup (TPM_p) or a Target Profit Markup to determine their prices
- **$P = V / (1 - \text{TPM}_p)$**
- Price = Variable Cost ÷ (1-Target Profit Markup) where
- $(F + Z) / (\text{Target Revenue}) = \text{Target Markup}$ including the Desired Profit
- Variable Cost per Unit= V

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- Their variable cost (i.e., invoice of cost of the goods sold, V) and a Desired Markup (TPM_p) or a Target Profit Markup to determine their prices
- **$P = \$4 / (1 - 60\%)$**
- Price = $\$4/0.4 = \10

Manufacturer's Use ROS

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Manufacturers Often Use

- Average Costs of Production and a Desired Return on Sales (ROS) as a target profit to determine their prices
- **$P = (V + F/Q) / (1 - ROS)$**
- Price = Average Cost per Unit ÷ (1- ROS)
where
- Z = ROS (Sales Revenue) = Desired Profit
- BEP = Average Cost per Unit = V + F/Q

Manufacturers Often Use

- Average Costs of Production and a Desired Return on Sales (ROS) as a target profit to determine their prices
- **$P = (\$4 + \$2.50) / (1 - 35\%) = \$10$**
- Price = Average Cost per Unit ÷ (1- ROS)
where
- Z = ROS (Sales Revenue) = Desired Profit
- Average Cost per Unit = V + F/Q

All Use Typical Operating Statement & Profit

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Exam Questions

Question #1

- A boy buys a wagon for \$4 and wants to sell it for a price that will earn him a 60% markup on price. What is the selling price he should choose for the wagon?

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- $P = V (1 - M_p)$
- $P = \$4 (1 - 0.6) = \10

Question #2

- A boy buys a wagon for \$4 and spends several hours cleaning and polishing it. His dad gives him the materials to make a "For Sale Sign" and he buys a can of paint for \$1.25. He wants to sell the wagon for a price that cover his costs and earns him a fair profit. He believes that a fair price would give him a 60% markup on price. What is the selling price he should choose for the wagon?

Question #2

- A boy buys a wagon for \$4 and spends several hours cleaning and polishing it. His dad gives him the materials to make a "For Sale Sign" and he buys a can of paint for \$1.25. He wants to sell the wagon for a price that cover his costs and earns him a fair profit. He believes that a fair price would give him a 60% markup on price. What is the selling price he should choose for the wagon?
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Question #2 is **more realistic** than Question #1 because it contains more information.

However, the extra information is irrelevant to solving the pricing problem.

In the real world we learn to disregard irrelevant information!

We learn to identify the relevant information by understanding the problem.

If we just memorize the formula, then we will **NOT** understand the problem.

Question #3

- A retailer buys wagons for \$4 each. He plans on selling 20,000 wagons and has total fixed costs of \$50,000. His target markup is a 60%. What is the selling price he should choose for the wagon?

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- A **retailer** with a target markup does **NOT** need to calculate the average cost per unit or the target profit.
- The target markup (M_p) includes the fixed costs (F), the target revenue (R), and the desired profit (Z).
- $M_p = (F+Z)/R$

- **Manufacturer's** think in terms of the average cost of producing each wagon and the target return on sales.
- **Manufacturer's** need to calculate the average cost per unit or the breakeven price (BEP)
 - Average Cost per Unit = $V + F/Q$
 - $BEP = V + F/Q$

Question #4

- A manufacturer makes wagons with a variable cost of \$4 each and wants to sell them at a price that will provide a 35% return on sales. He plans on selling 20,000 wagons and has total fixed costs of \$50,000. What is the selling price he should choose for the wagons?

Question #4

- A manufacturer makes wagons with a variable cost of \$4 each and wants to sell them at a price that will provide a 35% return on sales. He plans on selling 20,000 wagons and has total fixed costs of \$50,000. What is the selling price he should choose for the wagons?

- $P = (V+F/Q) / (1-ROS)$
- $P = (\$4 + \$50,000/20,000) / (1-0.35)$
- $P = (\$4 + \$2.5) / 0.65 = \$10$

- Both have the same \$10 price per wagon
- Because Both desire the same target profit of \$3.50 per wagon

- Same Costs per Wagon
- Same Target Profit per Wagon
- Same Selling Price Wagon

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Questions?