

## IMPORTANT MODELS

Cost of production = fixed costs + (per item cost)(number of items produced)

Gross income = (selling price)(number of items sold)

Net profit = gross income - cost of production

If Net is positive, it's a profit. Negative means a loss.

Breakeven point occurs when: Gross Income = Cost of Production

### Calculating Net Profit

The Hutchinson Corporation stamps popular designs on T-shirts and then sells them to retail stores. The fixed costs for this business during a month average \$32,850. Shirts can be produced at a cost of \$6.78 each. During March, the company produced and sold 12,750 T-shirts. Each shirt was sold for \$12. Did the company make a profit in March?

(a) Cost of production = fixed costs + production cost of T-shirts

$$f(x) = \$32,850 + \$6.78x$$

$$f(12,750) = \$32,850 + (\$6.78)(12,750)$$

$$f(12,750) = \$32,850 + \$86,445$$

$$f(12,750) = \$119,295$$

(b) Gross income = (selling price)(number of items sold)

$$g(x) = \$12x$$

$$g(12,750) = (\$12)(12,750) = \$153,000$$

(c) Net profit = gross income - cost of production =  $\$153,000 - \$119,295 = \$33,705$

The company made a profit of \$33,705 in March.

**Depreciation** The fixed assets or plant assets of a business are its buildings, machinery, equipment, land, and similar items that will be used for more than one year. **Depreciation** is the allowance made in bookkeeping for the decreases in value of property through wear, deterioration, or obsolescence. The **straight-line method of depreciation** is the simplest method used in bookkeeping. The **residual value** (also called scrap value or trade-in value) of an asset is its expected value at the end of its useful life. The total allowable depreciation (original cost – residual value) is divided evenly among the number of years of useful life of the property. Depreciation is considered to be an operating expense of a business and is deducted each year from the business profits when determining the year's taxable income.

## IMPORTANT EQUATIONS

### Straight-Line Method of Depreciation

$$\text{Annual depreciation} = \frac{\text{original value} - \text{residual value}}{\text{number of years}}$$

### Straight-Line Depreciation

A machine that engraves jewelry is purchased for \$6500. It is expected to last 8 years and to have a residual or scrap value of \$700. What amount of annual depreciation will be allowed using the straight-line method of depreciation?

Original cost	\$6500
Scrap value	– \$ 700
Allowable depreciation	<u>\$5800</u>

$$\text{Annual depreciation} = \$5800 \div 8 = \$725$$

A yearly depreciation expense of \$725 would be claimed each year for 8 years.