

Profitability and Breakeven Analysis Practice Problems

1. A company sells smartphone cases. They sell each case for \$20, and each case costs \$10 to manufacture. Their factory costs \$200 K per year to operate.
 - a) How many units does the company need to sell annually to break even?
 - b) How many units would they need to sell to have annual profit of \$1 M?
 - c) How many units would they need to sell to have annual profit of \$2 M?
 - d) What would their profit be if they sold 500 K units per year?

2. A company manufactures microscopes for \$1,200. Each microscope costs \$700 to manufacture. The company spends \$800 per year on factory rent and maintenance, and \$200 K per year in labor costs.
 - a) How many units does the company need to sell annually to break even?
 - b) How many units would they need to sell to have annual profit of \$10 M?
 - c) How many units would they need to sell to have annual profit of \$20 M?
 - d) What would their profit be if they sold 60 K units per year?

3. A company sells blenders for \$85 per unit. Each blender costs \$45 in materials, \$5 in energy costs, and \$10 in incremental labor costs. It costs the firm \$1.5 M in rent and equipment maintenance per year to run the factory. Administrative salaries are \$300 K per year, and other operational costs are \$200 K per year.
 - a) How many units does the company need to sell annually to break even?
 - b) How many units would they need to sell to have annual profit of \$6 M?
 - c) How many units would they need to sell to have annual profit of \$15 M?
 - d) What would their profit be if they sold 800 K units per year?
 - e) What would their profit be if they sold 1.2 M units per year?

4. A smoothie store sells smoothies for an average price of \$6.50. Each smooth costs \$1.25 in ingredients, and \$0.25 for packaging. The store spends \$7,500 per month on rent, \$2,500 per month on utilities and \$10,000 per month on labor.
 - a) How many smoothies does the store need to sell monthly to break even?
 - b) How many smoothes do they need to sell to have \$25 K in monthly profit?
 - c) How many smoothes does the store need to sell to have \$80 K in monthly profit?
 - d) If they sell 12 K smoothies per month, what will their monthly profit be?

5. A company manufactures wooden tables, which they sell for \$200 per table. Each table costs \$90 in materials and \$35 in labor to manufacture. The company spends \$125 K per month for rent and utilities on their factory, and \$25 in other overhead per month.
 - a) How many units will then need to sell monthly to break even?
 - b) How many units will they need to sell to have monthly profits of \$600 K?
 - c) What will their monthly profit be if they sell 14 K units per month?

6. A company produces and sells canned fruit. They sell each can of fruit for \$4.50, and each can costs \$1.50 in raw materials and \$0.50 in packaging costs. They spend \$150 K per month on factory rent, \$15 K per month on utilities, and \$35 K per month for labor.
 - a) How many units do they need to sell monthly to break even?
 - b) How many units do they need to sell to have monthly profit of \$500 K?
 - c) How many units do they need to sell to have monthly profit of \$2 M?
 - d) What would their **annual** profit be if they sold 500 K units per month?

7. A company manufactures and sells designer jewelry. Each piece of jewelry sells for an average of \$350, and costs \$165 materials and \$35 in labor. Every year, they spend \$250 K in rent and maintenance on their factory, \$40 K in other operational expenses, and \$10 K on advertising.
 - a) How many unites does the company need to sell annually to break even?
 - b) How many units would they need to sell to have annual profit of \$12 M?
 - c) How many units would they need to sell to have annual profit of \$18 M?
 - d) What would their profit be if they sold 240 K units per year?
 - e) What would their profit be if they sold 300 K units per year?

8. A company manufactures computers which they sell for \$1,500 per computer. For each computer sold, the company incurs incremental costs of \$900 for parts, \$100 in labor, and \$50 in transportation costs. Per year, they spend \$2 M on factory rent and maintenance, and \$250 K in utility costs.
- How many units do they need to sell annually to break even?
 - How many units do they need to sell annually have a profit of \$9 M?
 - What would their annual profit be if they sold 65 K units per year?
9. A company manufactures and sells motorized scooters. Each scooter sells for \$4,750 on average, and costs \$2,750 in parts and material, and \$500 in labor to manufacture. They spend \$45 M on factory rent, utilities, and maintenance per year, \$7 M on other administrative overhead, and \$8 M on advertising per year.
- How many units does the company need to sell annually to break even?
 - How many units would they need to sell to have annual profit of \$300 M?
 - How many units would they need to sell to have annual profit of \$1.2 B?
 - What would their profit be if they sold 6 M units per year?
 - What would their profit be if they sold 2.8 M units per year?
10. A company manufactures injectable vaccines. Each vaccine sells for \$530 and costs \$180 to manufacture. Their production facility costs \$1.15 M to operate annually. They spend \$400 K per year on sales and marketing expenses, and \$200 K per year on regulatory compliance.
- How many units does the company need to sell annually to break even?
 - How many units would they need to sell to have annual profit of \$21 M?
 - How many units would they need to sell to have annual profit of \$49 M?
 - What would their profit be if they sold 400 K units per year?