The Six Finance Formulas

CNML® quick sheet • by Mary Veneman BSN RN CEN

1 Depreciation (straight-line)

(Cost − Residual value) ÷ Useful life

Example: $60,000 monitor, $6,000 residual, 6 yrs → $54,000 ÷ 6 = **$9,000/yr**

Trap: Skipping the residual value ($60,000 ÷ 6 = $10,000). Book value = cost − depreciation so far.

2 Break-even

Fixed costs ÷ (Price − Variable cost per unit)

Example: $150,000 fixed, $1,200 price, $700 variable → $150,000 ÷ $500 = **300 visits**

Trap: Dividing by the price or the variable cost alone. Always subtract first — that's the margin.

3 Variance %

(Budget − Actual) ÷ Budget × 100

Example: Budget $80,000, actual $86,000 → $6,000 ÷ $80,000 = **7.5% unfavorable**

Trap: Dividing by the actual. Expenses over budget = unfavorable; revenue over budget = favorable.

4 Return on investment

(Gain − Cost) ÷ Cost × 100

Example: Spend $20,000, save $50,000 → $30,000 ÷ $20,000 = **150%**

Trap: Dividing by the gain, or forgetting to subtract the cost first.

5 Payback period

Cost ÷ Savings per period

Example: $24,000 system saves $8,000/yr → **3 years**

Trap: Flipping it (savings ÷ cost). The answer comes in the same time unit as the savings (per month → months).

6 Opportunity cost

Value of the best option you did NOT choose

Example: Pick A ($80,000) over B ($55,000) → opportunity cost = **$55,000**

Trap: Choosing what you got ($80,000), the difference ($25,000), or the sum ($135,000).

★ THE 3-STEP HABIT

1. Read the last sentence: what exactly is asked (annual? total? percent?). **2.** Write the formula — use the one in the question if they give it. **3.** Check you used **every number** given. Wrong answers are usually built from one skipped or swapped number.

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Practice Drills

Three per formula • answers with work at the bottom

Depreciation

1. Equipment costs $50,000 with a $5,000 residual value and a 9-year life. Annual depreciation?

2. A $24,000 bladder scanner has no residual value and a 4-year life. Annual depreciation?

3. An $80,000 bed fleet has an $8,000 residual value and a 6-year life. Book value after 2 years?

Break-even

4. Fixed costs $60,000; price $200 per visit; variable cost $80 per visit. Break-even visits?

5. Fixed costs $36,000; price $150; variable cost $60. Break-even visits?

6. Fixed costs $120,000; price $1,000; variable cost $600. Break-even cases?

Variance %

7. Supplies: budget $50,000, actual $54,000. Variance %, favorable or unfavorable?

8. Salaries: budget $200,000, actual $190,000. Variance %, favorable or unfavorable?

9. Revenue: budget $300,000, actual $315,000. Variance %, favorable or unfavorable?

ROI

10. A $10,000 program saves $25,000. ROI?

11. A $40,000 program saves $50,000. ROI?

12. A $15,000 program saves $12,000. ROI?

Payback

13. An $18,000 lift system saves $6,000 a year. Payback period?

14. A $50,000 system saves $20,000 a year. Payback period?

15. A $9,000 device saves $1,500 a month. Payback period?

Opportunity cost

16. Only one can be funded: A saves $70,000, B saves $45,000. The unit picks A. Opportunity cost?

17. Same choice, but the unit picks B. Opportunity cost?

18. Three options: A $90,000, B $60,000, C $40,000. The unit picks A. Opportunity cost?

Answers		
1. $45,000 ÷ 9 = **$5,000**	**2.** $24,000 ÷ 4 = **$6,000**	**3.** $72,000 ÷ 6 = $12,000/yr; $80,000 − $24,000 = **$56,000**
4. $60,000 ÷ $120 = **500**	**5.** $36,000 ÷ $90 = **400**	**6.** $120,000 ÷ $400 = **300**
7. $4,000 ÷ $50,000 = **8% unfavorable**	**8.** $10,000 ÷ $200,000 = **5% favorable**	**9.** $15,000 ÷ $300,000 = **5% favorable** (revenue over = good)
10. $15,000 ÷ $10,000 = **150%**	**11.** $10,000 ÷ $40,000 = **25%**	**12.** −$3,000 ÷ $15,000 = **−20%** (a loss)
13. $18,000 ÷ $6,000 = **3 years**	**14.** $50,000 ÷ $20,000 = **2.5 years**	**15.** $9,000 ÷ $1,500 = **6 months**
16. **$45,000** (B, given up)	**17.** **$70,000** (A, given up)	**18.** **$60,000** (the best option not chosen)

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