

Problems

Problem 3-1.

Present values

Work out present value for each of the following:

Present value	Years	Interest rate	Future value
?	5	4%	Rs 15,451
?	8	12	51,557

Problem 3-2.

Future values

Work out future value for each of the following:

Present value	Years	Interest rate	Future value
Rs 76,355	3	19%	?
183,796	7	5	?

Problem 3-3.

Present and future values

Calculate present and future values of the following:

- An initial Rs 500 compounded for 10 years at 12 percent.
- The present value of Rs 500 due in 10 years at 6 percent discount rate.

Problem 3-4.

Solving for present value

Suppose you had just celebrated your 19th birthday. A rich uncle set up a trust fund for you that will pay Rs 100,000 when you turn 25 years. If the relevant discount rate is 11 percent, how much is this fund worth today?

Problem 3-5.

Future value

An enterprise had sales last year of only Rs 0.5 million. However, a stock market analyst is bullish on the company and predicts that sales will double each year for 4 years. What are projected sales at the end of this period?

Problem 3-6.

Future values

You are scheduled to receive Rs 30,000 in two years. When you receive it, you will invest it for six more years at 5.5 percent per year. How much will you have in eight years?

Problem 3-7.

Present values

Which amount is worth more at 14 percent: Rs 1,000 in hand today or Rs 2,000 due in 6 years?

Problem 3-8.

Present values

Suppose you need Rs 30,000 next year to buy a new computer. The interest rate is 8 percent per year. How much money should you set aside now in order to pay for the purchase? Suppose that you can postpone buying the computer until the end of 2 years. How much money should you set aside now in order to pay for the purchase? What would happen to present value when future cash payments are delayed? Explain on the basis of your computed figure.

Problem 3-9.

Solving for number of periods

To the closest year, how long will it take Rs 200 to double if it is deposited and earns the following rates?

- 7 percent
- 10 percent

Problem 3-10.

Solving for Interest rate

Solve for interest rate in each of the following:

Present value	Years	Interest rate	Future value
Rs 39,000	15	?	Rs 136,771
46,523	30	?	255,810

Problem 3-11.

Solving for interest rate or rate of growth

Shitalnagar Oil Corporation's 2011 sales were Rs 12 million. Sales were Rs 6 million 5 years earlier (in 2006).

- To the nearest percentage point, at what rate have sales been growing?
- Suppose someone calculated the sales growth for MC corporation in part a as follows: "Sales doubled in 5 years. This represents a growth of 100 percent in 5 years, so dividing 100 percent by 5, we find the growth rate to be 20 percent per year." Explain what is wrong with this calculation.