

Out Back Mining purchased land for \$100,000,000. The land is believed to contain significant zinc deposits. Preliminary estimates indicate that 250,000 metric tons will be available for extraction over a ten-year period. The anticipated selling price over the ten-year period is estimated at \$1,000 per metric ton. Labor and operating expenses, exclusive of depreciation and depletion, is typically 30% of revenue. At the cessation of mining, \$25,000,000 must be spent to restore the mining operations area. The land will then be donated to the area government as a wildlife and natural area.



**SPREADSHEET
TOOL:**

*Maximum/
Minimum value
functions*

The investment in mining equipment will involve \$5,000,000 of excavation equipment with no salvage value at the end of the mining operation. This category of equipment will be abandoned at the conclusion of the ten-year period. An additional \$10,000,000 will be expended on hauling equipment with a 20-year life and \$2,000,000 salvage value. This particular equipment will be relocated to a new mining operation after the zinc mine is closed. The company uses straight-line depreciation for all mining equipment.

- (a) Assuming that each year's production is sold during the year of extraction, determine annual income for each year, based upon the following production activity:

Year 1	25,000 tons	Year 6	35,000 tons
Year 2	20,000 tons	Year 7	15,000 tons
Year 3	30,000 tons	Year 8	25,000 tons
Year 4	25,000 tons	Year 9	25,000 tons
Year 5	25,000 tons	Year 10	25,000 tons

Which year had the highest income, and which year had the lowest income? How did the choice of depreciation method impact this outcome?

- (b) Assuming that 20% of Year 5's production was unsold at year end, how much of Year 5's depletion would be charged to cost of goods sold and how much to ending inventory?
- (c) Disregard part (b), and assume that at the beginning of the 9th year, an additional vein of zinc was discovered that increased the estimated reserves by an additional 50,000 tons. No additional costs will be incurred in extracting this material. How much is the revised "per ton" depletion for the remaining deposits?