

JK Co is evaluating the purchase of a new machine to produce product P, which has a short product life-cycle due to rapidly changing technology. The machine is expected to cost \$1.1 million. Production forecast to be as follows:

Year	1	2	3	4
Production and sales (units/year)	36,000	52,000	75,000	36,000

The selling price of product P (in current price terms) will be \$20 per unit, while the variable cost of the product (in current price terms) will be \$12 per unit. Selling price inflation is expected to be 4% per year and variable cost inflation is expected to be 5% per year. No increase in existing fixed costs is expected since JK Co has spare capacity in both space and labour terms.

Producing and selling product P will call for increased investment in working capital. Analysis of historical levels of working capital within JK Co indicates that at the start of each year, investment in working capital for product P will need to be 8% of sales revenue for that year.

JK Co pays tax of 30% per year in the year which the taxable profit occurs. Liability to tax is reduced by capital allowances on machinery (tax-allowable depreciation), which JK Co can claim on a straight-line basis over the four-year life of the proposed investment. The new machine is expected to have no scrap value at the end of the four- year period.

JK Co uses a nominal (money terms) after-tax cost of capital of 10% for investment appraisal purposes.

Required:

- (a) Calculate the net present value of the proposed investment in product P.
- (b) Calculate the internal rate of return of the proposed investment in product P.