

Number - Depreciation

The size of the North Sea Cod Stock in 2008 is estimated at 250 000 tonnes.
Because of over-fishing it is decreasing at the rate of 11% per annum.

How many years will it be before the North Sea Cod Stock falls below the critical level of 70 000 tonnes?

You **must** show your working and justify your answer fully.

(4 marks)

Number - Depreciation

The size of the North Sea Cod Stock in 2008 is estimated at 250 000 tonnes. Because of over-fishing it is decreasing at the rate of 11% per annum.

How many years will it be before the North Sea Cod Stock falls below the critical level of 70 000 tonnes?

You **must** show your working and justify your answer fully.

To decrease by 11% we can find 89%

$$250\,000 \times 0.89 \quad \text{after 1 year}$$

$$250\,000 \times 0.89^2 \quad \text{after 2 years}$$

$$250\,000 \times 0.89^n \quad \text{after } n \text{ years}$$

Use trial and error to see when amount dips below 70 000 tonnes

$$250\,000 \times 0.89^{10} = 77\,954 \text{ tonnes after 10 years}$$

$$250\,000 \times 0.89^{11} = 69\,379 \text{ tonnes after 11 years}$$

Answer = 11 years

(4 marks)