



JETS Challenge 123
Engineering Salaries

Engineers have the highest starting salary at about \$45,000 per year. Business graduates start at about \$35,000 per year. Assume that both salaries increase an average of 2% from graduation on their 22nd birthday to retirement on their 66th birthday. The equation to find the sum of the annually increasing salaries over a number of years is given by:

$S = S_0 [(1+i)^n - 1]/[i]$ where

S = total salary for the given period (\$)

S_0 = initial starting salary (\$/year)

I = annual increase above initial salary (expressed as a decimal value)

N = number of years of analysis (year)

The Challenge: Find the lifetime earning difference between the average engineer and the average business major.

44 years

$$S_{\text{engineer}} = S_0 [(1+i)^n - 1]/[i] = \frac{45,000[1+.02]^{44} - 1}{0.02} = \$3,127,619$$

$$S_{\text{businessmajor}} = S_0 [(1+i)^n - 1]/[i] = \frac{35,000[1+.02]^{44} - 1}{0.02} = \$2,432,593$$

$$\text{Difference} = \$3,127,619 - \$2,432,593 = \$695,026$$

Answer:

JETS

Explore... Assess... Experience Engineering!

www.jets.org

JETS Challenge problems are generously provided by Dave Meredith, Associate Professor, Penn State University-Fayette