

# Homework



**ASSIGN  
BUSTER**

Lets assume that an uncle of yours was injured on 1/1/05 in an automobile accident. The accident was serious, it was the other drivers fault, and as the result of the accident your uncle will not be able to return to his medical practice where he earned \$210, 000 during calendar year 2004.

Your uncles accident occurred on his 60th birthday (some birthday) and he planned (prior to the accident) to work another eight years (until the end of 2012). Your uncle has sustained a large economic loss because he can no longer count on his substantial earnings from his medical practice. To recover his economic loss, your uncle files suit against the other driver and his insurance company in Wisconsin Civil Court. The case comes to trial at the end of this month, but your uncle has just received a settlement offer from the insurance company of \$2, 000, 000 to compensate him for his loss of past (2005) and future (2006-2012) earning capacity. Your uncle seeks your advice in evaluating the settlement offer. In particular, he asks you whether \$2, 000, 000 meets the standard required in Wisconsin Civil Court “that all future economic damages be expressed in present value terms”.

[You should know also that the convention in these legal proceedings is to use the Treasury bond rate as the discount rate.]To give your uncle the advice he seeks you must calculate the present value of his expected earnings for the years 2005-2012. In making this calculation, assume the following: a) Your uncle (absent the accident) would have continued to work full time in his medical practice from the date of the accident (1/1/05 until his projected retirement on 12/31/2012).

b) Your uncle earned \$210, 000 in 2004 and expected to have his earnings increase in 2005 and each future year by 8% per year. c) Use 4. 5% as the



that would have been received? during (or before) the current year? is not reduced in the present value

calculation.]~~~~~

~~~~~Perhaps the following will help you sort this out:? Below is the general form of the present value formula. This is simply the formula that Mankiw presents on pages 176 and 177, but written for the specific circumstance of:? Income to be received in each future year for? 7 years, discounted at 4. 5% per annum.

? ???  $PV = (\text{income in year 1})/(1.045)^1 + (\text{income in year 2})/(1.045)^2 + (\text{income in year 3})/(1.045)^3 + (\text{income in year 4})/(1.$

$045)^4 + (\text{income in year 5})/(1.045)^5 + (\text{income in year 6})/(1.045)^6 +$

$(\text{income in year 7})/(1.045)^7$ ? If we were to rewrite this expression using a discount rate of 7%, we would write:? ???  $PV = (\text{income in year 1})/(1.07)^1 + (\text{income in year 2})/(1.07)^2 + (\text{income in year 3})/(1.07)^3 + (\text{income in year 4})/(1.$

$07)^4 + (\text{income in year 5})/(1.07)^5 + (\text{income in year 6})/(1.07)^6 + (\text{income in$

$\text{year 7})/(1.07)^7$ ? The information provided in your assignment for this week (see below) just performs these individual calculations for you (on the assumption of \$1 received at the end of? each future year).? Thus (using the 4. 5% case), if you want to calculate the present value of \$300, 000 received in 2008, the  $PV = \$300,000 \times .8763 = \$262,890$ ? The same calculation using a 7% discount rate is:  $\$300,000 \times .8163 = \$244,890$ ? This example illustrates a very important result: other things being equal, the present value of any sum of money to be received in

the future will vary inversely with the discount rate. The higher the discount rate, the lower the present value. This explains why the stock market generally declines when interest rates rise and why housing prices decline when mortgage rates rise, etc.? The present value of \$1 discounted at 4. 5% (and received at the? end of each of the following years) is:

2005? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? \$1. 00 ? ? = \$1/ (1.

045)02006? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? \$ . 9569? ? ? = \$1/ (1.

045)12007? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? \$ . 9157? ? = \$1/ (1.

045)22008? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? \$ . 8763? ? = \$1/ (1.

045)32009? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? \$ . 8386? ? = \$1/ (1.

045)42010? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? \$ . 8025? ? = \$1/ (1.

045)52011? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? \$ . 7679? ? = \$1/ (1.

045)62012? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? \$ . 7348? ? = \$1/ (1. 045)7The present value of \$1 discounted at 7% (and received at the end of each of the following

years) is: 2005? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? \$1. 00? ? ? = \$1/ (1.

07)02006? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? \$ . 9346? ? = \$1/ (1.

07)12007? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? \$ . 8734? ? ? ? ? = \$1/ (1.

07)22008? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? \$ . 8163? ? = \$1/ (1.

07)32009? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? \$ . 7629? ? = \$1/ (1.

07)42010? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? \$ . 7130? ? = \$1/ (1.

07)52011? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? \$ . 6663? ? = \$1/ (1.

07)62012? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? \$ . 6227? ? ? ? ? = \$1/ (1. 07)7Let me know if you are still having trouble with any of

this.? ? ~~~~~~The

following template may be of some assistance in setting this problem up

Chapter 9 Assignment Template

<https://assignbuster.com/homework-7/>