

Activity 5.5 - Goal seeking

What-if analysis is one of the powerful features of using a spreadsheet. In this activity we will investigate goal seeking where Excel will vary values to meet specific targets.

1. We will first use goal seeking to determine possible mortgage repayments

a Create the worksheet at right.

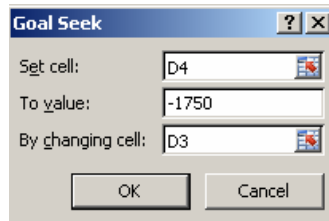
The *pmt* function will calculate the monthly repayments on a \$250 000 loan over 25 years (300 months), at an interest rate of 7.5%. The \$1 847.48 is negative to show it is money owed.

b Say we want to determine what interest rate we would have to get, to reduce the payment to \$1 750 per month.

From the ribbon choose *Data > Data Tools > What If Analysis > Goal Seek*.

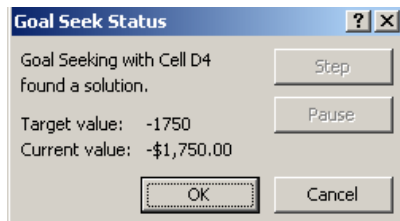
In the dialogue that appears set the following values:

fx =PMT(D3/12,D2,D1)	
C	D
Loan:	\$ 250,000
Months:	300
Rate:	7.5%
Repayment:	-\$1,847.48



This means set D4 (repayment) to -\$1750 by varying D3 (the rate).

Click *OK*, and then *OK* to the *Goal Seek Status* solution found box.



Loan:	\$ 250,000
Months:	300
Rate:	6.9%
Repayment:	-\$1,750.00

This shows that to pay back just \$1 750 a month we would have to find a bank willing to offer 6.9%.

c Use the goal seek to determine the maximum we could borrow at 8%, if we could afford to repay \$1800 per month. (Ans: \$233 216)

Loan:	\$ 250,000
Months:	300
Rate:	8.0%
Repayment:	-\$1,929.54

d Use goal seek to find how many months it would take to pay back \$220 000 at a rate of 7.3% and with repayments of -\$1750 per month. (Ans: 238.6 months)

2. Now have a go at setting up your own goal seeking worksheet for the following scenario.

Having set up a lemonade stand Mary and Jim prepare a worksheet as at right.

Income is calculated by $(\text{cups made} * \text{selling price}) - (\text{cups made} * \text{cost per cup})$.

They expect to sell 200 cups and need to earn \$80 for Mother's Day.

Use goal seek to find what price they have to charge per cup. (Ans: 67c per cup)

	A	B
1	Cups made:	100
2	Selling price:	\$ 0.50
3	Cost per cup	\$ 0.27
4	Income:	\$ 23.00