CREDIT CARDS

P = Starting balance
PMT = regular payment amount
APR = annual percentage rate of interest
(in decimal form if doing calculations by hand)

n = number of payment periods per year
Y = loan term in years

Formula	Example	Using TVM Solver (TI-83:FINANCE; TI-83+, TI-84:APPS)
$$PMT = \frac{p \times \left(\frac{APR}{n}\right)}{\left[1 - \left(1 + \frac{APR}{n}\right)^{(-n \times Y)}\right]}$$ If you have a balance, P, you wish to pay off in Y years without further credit card purchases	You have a credit card balance of $4000 with an annual interest rate of 19%. You decide to pay off your debt over the next 18 months (1.5 years) and make no further credit card purchases during this time. $$PMT = \frac{4000 \times \left(\frac{.19}{12}\right)}{\left[1 - \left(1 + \frac{.19}{12}\right)^{(-12 \times 1.5)}\right]} = \$257.13$$ You must pay $257.13 each month to pay off the balance (and interest) in 1.5 years.	(1) Press 2nd x^{-1} (FINANCE) or APPS (2) Choose 1: TVM Solver (3) Enter N = 12 × 1.5 or 18 = number of payment periods I% = 19 PV = -4000 (negative means outflow of cash) PMT = 0 FV = 0 = future value P/Y = 12 = number of payments per year C/Y = 12 = number of compounding periods per year (12 for monthly) PMT = highlight END for end of month deposits (4) Arrow up to PMT since we are looking for the monthly payment. (5) Press ALPHA ENTER (SOLVE). ▪ PMT = $257.13 which agrees with the formula calculation to the left, so you must pay $257.13 each month.

CREDIT CARDS (continued)

If you have a balance and continue to make credit card purchases without paying off the balance during the grace period

Balance = \$4000

APR = 19%

Monthly Interest = $\frac{.19}{12}$

Monthly payment = \$175

Month	Payment	Expenses (Purchases by credit card)	Interest	New Balance
0				\$4000
1	\$175	\$50	$4000\left(\frac{.19}{12}\right) = \$63.33$	4000 – 175 + 50 + 63.33 = \$3938.33
2	\$175	\$40	$3938.33\left(\frac{.19}{12}\right) = \$62.36$	3938.33 – 175 + 40 + 62.36 = \$3865.69
3	\$175	\$25	$3865.69\left(\frac{.19}{12}\right) = \$61.21$	3865.69 – 175 + 25 + 61.21 = \$3776.90
4	\$175	\$100	$3776.90\left(\frac{.19}{12}\right) = \$59.80$	3776.90 – 175 + 100 + 59.80 = \$3761.70

If you are able to pay off your credit card in the 5th month and make no further purchases, what would your payment be?

$$(3761.70)\left(\frac{.19}{12}\right) + 3761.70 = \$3821.26$$