

Name: ANSWER KEY

Score: _____

A college student receives an interest-free loan of \$8250 from a relative. The student will repay \$125 per month until the loan is paid off.

- (a) Express the amount P (in dollars) remaining to be paid in terms of time t (in months).

$$\begin{aligned} \text{Amount to be paid} &= \text{Loan} - \text{amount repaid} \\ \text{Amount repaid} &= (\text{monthly payment}) \times (\text{number of months}) \end{aligned}$$

$$P = 8250 - 125t$$

- (b) After how many months will the student owe \$5000?

$$\begin{aligned} 5000 &= 8250 - 125t \\ 125t &= 8250 - 5000 = 3250 \\ t &= \frac{3250}{125} = \boxed{26} \end{aligned}$$