

1. Nick borrowed \$18,000 for a car for 7 years at an APR of 7.5%. What will his monthly payment be?

Monthly Payment Formula

$$M = ?$$

$$P = 18000$$

$$r = 7.5\% \rightarrow .075$$

$$t = 7$$

$$M = \frac{189.8661596}{.6876991963}$$

$$M = \$276.09$$

2. Tyler found a car he wants to buy that costs \$18,000. He can afford to pay \$275 a month for the car. His bank offers him a car loan of 6.9%. What will the length of Tyler's loan be? Round to the nearest tenth of a year.

Loan Length Formula

$$M = 275$$

$$P = 18000$$

$$r = 6.9\% \rightarrow .069$$

$$t = ?$$

$$t = \frac{.4721878311}{.0688023822}$$

$$t = 6.9 \text{ years}$$

3. Jake wants to buy a laptop. The total cost is \$1,080. If he can save \$30 a month, how long will it take for him to save up for the laptop?

$$1080 \div 30 = 36 \text{ months}$$

or

$$3 \text{ years}$$

4. Chris is going to borrow \$12,000 from his credit union to buy a used car. The APR is 7.0% and the length of the loan is 3 years. How much will Chris pay in interest?

Monthly Payment Formula

$$M = ?$$

$$P = 12000$$

$$r = 7.0\% \rightarrow .07$$

$$t = 3$$

$$M = \frac{86.30479112}{.2329255875}$$

$$M = \$370.53$$

monthly payment

$$\text{Total} = 370.53 \times 36 = 13,339.08$$

$$\text{Interest} = 13,339.08 - 12,000$$

$$\text{Interest} = \$1,339.08$$

5. The Jones family purchases a new oven on a no-interest-for-one-year plan. The cost is \$1,415. There is no down payment. If they make a monthly payment of x dollars until the last month, express their last month's payment algebraically.

$$1415 - 11x$$

6. Alyssa took out a \$6,500 loan with an APR of 7.375% and agreed to pay it back monthly over five years. How many monthly payments will she make?

$$5 \text{ years} \times 12 \text{ months per year} = \boxed{60 \text{ months}}$$

7. Regina has a \$11,000, four-year loan with an APR of 7.25%.

- a. What is the monthly payment?

Monthly Payment Formula

$$M = ?$$

$$P = 11000$$

$$r = .0725$$

$$t = 4$$

$$M = \frac{88.73928208}{.3352619248}$$

$$M = \$264.69$$

b. What is the total amount of the monthly payments?

$$4 \text{ yrs} = 48 \text{ months}$$

$$264.69 \times 48 = \boxed{\$12,704.95}$$

total

c. What is the finance charge?

$$12,704.95 - 11,000 = \boxed{\$1,704.95}$$

finance charge

8. Lauren buys a \$5,200 heating system using an installment plan that requires 18% down. How much is the down payment?

$$18\% \rightarrow .18$$

$$5,200 \times .18 = \boxed{\$936 \text{ Down Payment}}$$

9. Barry found a smart car he wants to buy that costs \$20,100. He can afford to pay \$310 a month for the car. His bank offers him a car loan of 7.4%. What will the length of Barry's loan be? Round to the nearest tenth of a year.

Loan Length Formula

$$M = 310$$

$$P = 20,100$$

$$r = 7.4\% \rightarrow .074$$

$$t = ?$$

$$t = \frac{.5105568427}{.073772767}$$

$$\boxed{t = 6.9 \text{ years}}$$

