

## Sec. 8.7 Applications of Exponential Functions

We want to save \$10,000 for a down payment on a house we'd like to buy in 4 years. How much do we need to deposit into an account which pays a yearly rate of 7%?

$$A = P(1+r)^t$$

$$A = 10,000$$

$$10,000 = P(1+0.07)^4$$

$$r = 7\% = 0.07$$

$$t = 4$$

$$\frac{10,000}{(1.07)^4} = \frac{P(1.07)^4}{(1.07)^4}$$

$$\frac{10,000}{(1.07)^4} = P$$

$$10,000 \div (1.07 \overset{\boxed{\wedge}}{4}) =$$

$\times 4$

$y^x$

$\$7628.95 = P$

Maria's parents want \$3,000 for tuition for college in 4 years. The account pays 4% compounded annually. How much should they deposit?

$$A = P(1+r)^t$$

$$A = 3,000$$

$$r = 0.04$$

$$t = 4$$

$$3000 = P(1+0.04)^4$$

$$\frac{3000}{(1.04)^4} = \frac{P(1.04)^4}{(1.04)^4}$$

$$\frac{3000}{(1.04)^4} = P$$

$$\underline{\$2564.41 = P}$$

A painting's value has grown 8% per year for 5 years. It's worth \$150,000 now. What was its value 5 years ago?

$$A = P(1+r)^t$$

$$A = 150,000$$

$$r = 0.08$$

$$t = 5$$

$$150,000 = P(1+0.08)^5$$

$$\frac{150,000}{(1.08)^5} = \frac{P(1.08)^5}{(1.08)^5}$$

$$\underline{\$102,087.48 = P}$$

Lionel answers a step in algebra correctly 95% of the time.

He does 100 problems, each with 4 steps. Calculate the probability Lionel will correctly answer all 4 steps in a given problem.

$$A = P(1+r)^t$$
$$100(1-0.05)^4$$
$$100(.95)^4$$

$$A = 81 \text{ problems}$$

p. 421 (1-39)all