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Decay

Word Problem Practice

1. A car costs 22,350 and decreases in value by 8% per year. How much will the car be worth in 15 years?

$$1 - 0.08 = 0.92$$

$$a = 22350 (.92)^{15}$$

$$a = \$6398.75$$

a: ?
 P: 22,350
 b: .92
 t: 15

2. Suppose you invest \$540 at 6% interest compounded continuously. How much will be in the account in 23 years?

$$A = 540 e^{.06(23)}$$

$$A = \$2146.45$$

A: ?
 P: 540

3. If you invest \$6500 at 4% interest compounded continuously, how long will it take for the money to triple?

$$= 6500 \times 3 = 19500$$

$$\frac{19500}{6500} = \frac{6500 e^{.04t}}{6500}$$

$$3 = e^{.04t}$$

$$\ln 3 = \ln e^{.04t}$$

$$\frac{\ln 3}{.04} = \frac{.04t}{.04}$$

$$t = 27.47 \text{ years}$$

r: .06
 t: 23
 A: 19500
 P: 6500
 r: .04
 t: ?

$$a = pb^t$$

$$A = Pe^{rt}$$

$$A = Pe^{rt}$$