Determine whether each equation represents exponential growth or exponential decay.

1. $y = 72(1.6)^x$ **2.** $y = 24(0.8)^x$ **3.** $y = 3\left(\frac{6}{5}\right)^x$ **4.** $y = 7\left(\frac{2}{3}\right)^x$

5. A new car that sells for $18,000 depreciates 25% each year. Write a function that models the value of the car. Find the value of the car after 4 yr.

6. The bear population increases at a rate of 2% per year. There are 1573 bears this year. Write a function that models the bear population. How many bears will there be in 10 yr?

7. The population of an endangered bird is decreasing at a rate of 0.75% per year. There are currently about 200,000 of these birds. Write a function that models the bird population. How many birds will there be in 100 yr?

For each annual rate of change, find the corresponding growth or decay factor.

8. 45% **9.** –20%