

1. $y = 5(2)^x$: growth or decay? What is the start?

$$b = 2 > 1$$

Answer: growth; starts at 5

2. $y = 100(0.8)^x$: growth or decay?

$$b = 0.8 < 1$$

Answer: decay

3. $y = 3(2)^x$: find y when $x = 4$.

$$3 \times 16$$

Answer: 48

4. $y = 200(0.5)^x$: find y when $x = 3$.

$$200 \times 1/8$$

Answer: 25

5. A colony of 50 bacteria doubles each hour. Equation?

$$a = 50, b = 2$$

Answer: $y = 50(2)^x$

6. Same colony after 5 hours?

$$50 \times 32$$

Answer: 1600

7. A 160-g sample halves each day. Equation and amount after 4 days?

$$y = 160(0.5)^x$$

$$160/16$$

Answer: 10 g

8. Which decays faster: $b = 0.9$ or $b = 0.6$? Why?

Smaller b keeps less each step

Answer: 0.6 - keeps only 60%

9. $y = a(3)^x$ passes through (2, 45). Find a . ★ challenge

$$45 = a(9)$$

Answer: $a = 5$

10. A population triples every 2 years, starting at 400. How many after 6 years, and why is the exponent 3 (

6 years = 3 doubling... tripling periods

$$400 \times 3^3$$

Answer: 10,800; exponent counts PERIODS