

Name: _____

Date: _____

$y = a \cdot b^x$. Growth: $b > 1$. Decay: $0 < b < 1$. a is the start. Last two are challenge problems!

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

show your work

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

show your work

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

show your work

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

show your work

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

show your work

6. Same colony after 5 hours?

show your work

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

show your work

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

show your work

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

show your work

10. A population triples every 2 years, starting at 400. How many after 6 years, and why is the exponent 3 (not 6)? ★ CHALLENGE

show your work