

1. Data doubles each step: 2, 4, 8, 16. Linear or exponential model?

Constant ratio

Answer: exponential

2. Data rises by a fixed +3 each step. Which model?

Constant difference

Answer: linear

3. A ball's height goes up then down (a parabola). Best model?

U/arch shape

Answer: quadratic

4. A savings account grows by 5% per year. Model type?

Percent growth

Answer: exponential

5. Points that fall then rise (a valley). Best model?

Parabola

Answer: quadratic

6. Population that keeps multiplying. Linear or exponential?

Multiplying

Answer: exponential

7. How can you tell exponential from linear in a TABLE?

Ratio vs difference

Answer: constant ratio = exp; constant diff = linear

8. Which model for temperature of coffee cooling toward room temp over time?

Levels off - decay curve

Answer: exponential decay

9. A table: 3, 6, 12, 24, 48. State the model type, the ratio, and the next value. ★ challenge

x2 each time

Answer: exponential, $r = 2$, next 96

10. A quadratic model $f(x) = -x^2 + 6x$ fits some data. What is the maximum predicted value and where? ★

Vertex: $x = 3$

$-9 + 18$

Answer: max 9 at $x = 3$