

Exponential Functions – Practice

1. If a basketball is bounced from a height of 15 feet, the function $f(x) = 15(0.75)^x$ gives the height of the ball in feet of each bounce, where x is the bounce number. What will be the height of the 5th bounce? Round to the nearest tenth of a foot.

Tell whether each set of ordered pairs satisfies an exponential function. Explain your answer.

2. $\{(2, 4), (4, 8), (6, 16), (8, 32)\}$

x	y

4. $\{(1, 750), (2, 150), (3, 30), (4, 6)\}$

x	y

3. $\{(-2, 5), (-1, 10), (0, 15), (1, 20)\}$

x	y

5. $\{(0,1), (5,3), (10,9), (15,27)\}$

x	y

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6. In the year 2000, the population of Virginia was about 7,400,000. Between the years 2000 and 2004, the population in Virginia grew at a rate of 5.4%. At this growth rate, the function, $f(x) = 7,400,000(1.054)^x$ gives the population x years after 2000. In what year will the population reach 15,000,000?
7. The function $f(x) = 2300(0.995)^x$ models enrollment in high school.
- What is the initial value?
 - What is the base?
 - Is the population in the high school increasing or decreasing? How do you know?
8. The function $f(x) = 550(1.025)^x$, models the population of rabbits.
- What was the starting population of rabbits?
 - Is the population increasing or decreasing? How do you know?
 - What is the population of rabbits after 5 years?
9. The function $f(x) = 6(1.5)^x$, models the length of a photograph in inches after the photo has been enlarged.
- What is the starting length of the photograph? Be sure to include units.
 - How many times has it been enlarged if the length of the side is 20.25?
10. The function $f(x) = 75(1.2)^x$, models the number of rainbow trout in a lake.
- What is the starting population of trout?
 - Is the population increasing or decreasing? How do you know?
 - What is the population of trout after 10 years?