

Patterns & Functions: Arithmetic & Geometric Sequences

Find the next three terms in each sequence.

Arithmetic Sequence

The difference between each pair of numbers is the same.

$$3, 6, 9, 12, \dots \underline{15}, \underline{18}, \underline{21}$$

+3

Geometric Sequence

You can always find the next term by multiplying the previous term by the same number.

$$3, 9, 27, 81, \dots \underline{243}, \underline{729}, \underline{2,187}$$

×3

1. 7, 14, 21, 28 ...

2. 1, 4, 16, 64, ...

3. 5, 10, 20, 40, ...

4. 15, 30, 45, 60, ...

5. 9, 3, 1, $\frac{1}{3}$, $\frac{1}{9}$, ...

6. $\frac{1}{16}$, $\frac{1}{4}$, 1, 4, ...

7. 1, 2.1, 3.2, 4.3, ...

8. 0, 17, 34, 51, ...

9. 2, 1, 0.5, 0.25, ...

10. 6, 12, 18, 24, ...

11. 1, 5, 25, 125, ...

12. 0.2, 0.4, 0.8, 1.6, ...

13. 0, 16, 32, 48, ...

14. 64, 32, 16, 8, ...



15. Create a sequence using the given rules. Provide at least five terms for each sequence, beginning with the given number.

- a. Add 0.6 to each term: 10
- b. Multiply each term by $\frac{1}{2}$: 4

MATH FACTS

Modern mathematics has been built throughout the past 1,800 years by contributions from China, India, the Arabic Empire, East & West Europe, & America.



MATH BRIDGE



Patterns & Functions: Problem Solving

Solve each problem.

1. Brenda decides to start exercising. She knows that she must begin gradually. She decides to work out 5 minutes the first day and then double her exercise time each day for a week. Write a sequence showing the length of time she will exercise each day. Is her plan reasonable? Why or why not?

2. A parking garage in Atlanta charges \$2 for the first hour, then \$0.75 for each additional hour. Stacey parks her car in the garage at 8:00 a.m. and owes \$8.75 when she leaves. How long was her car in the garage?

3. Sue baked some chocolate chip cookies. She kept half of them for herself and took the other half to work. She put those cookies in 4 bags, a dozen in each bag. How many cookies did she make?

4. Mr. Owens is delivering bottles of soda to food marts. At the first one, he drops off half of the bottles in the truck. At each of the other marts, he delivers half of the bottles he has left in the truck. At the eleventh store, he drops off 1 bottle, which is the last one. How many bottles were originally in the truck?

1. The difference between each pair of numbers is the same

2.

3.

4.