

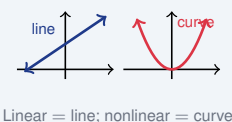
Linear and Nonlinear Functions

Name: _____ Date: _____ Score: _____ / 18

Quick Review and Helpful Hints

A *linear* function has a constant rate of change and graphs as a straight line; its equation looks like $y = mx + b$ (the variable is only to the first power). A *nonlinear* function (like $y = x^2$ or $y = \frac{1}{x}$) curves and changes its rate.

▶ **Example:** Is $y = 3x - 2$ linear or nonlinear? **Work:** The variable x is to the first power and the form is $y = mx + b$, so the graph is a straight line.
 ★ **Answer:** Linear



Practice Problems

Tell whether each function is Linear or Nonlinear.

- | | | | |
|---------------------------|-------|---|-------|
| 1. $y = 2x + 1$ | _____ | 8. $y = 2^x$ | _____ |
| 2. $y = x^2$ | _____ | 9. $y = 7 - x$ | _____ |
| 3. $y = -4x$ | _____ | 10. $y = \sqrt{x}$ | _____ |
| 4. $y = x^3 + 1$ | _____ | 11. Table $y: 2, 4, 6, 8$ (equal steps) | _____ |
| 5. $y = 5$ | _____ | 12. Table $y: 1, 4, 9, 16$ | _____ |
| 6. $y = \frac{1}{x}$ | _____ | 13. $y = x^2 - 2x$ | _____ |
| 7. $y = \frac{1}{2}x - 3$ | _____ | 14. $y = -x + 6$ | _____ |

Word Problems

15. A car travels at a constant 60 mph. Is distance vs. time linear or nonlinear? _____
16. A population doubles every year. Is that growth linear or nonlinear? _____
17. A function in the form $y = mx + b$ always graphs as what kind of shape? _____
18. The graph of $y = x^2$ is a curve. What is that curve called? _____



Answer Keys

- | | | |
|--------------|---------------|-------------------|
| 1. Linear | 7. Linear | 13. Nonlinear |
| 2. Nonlinear | 8. Nonlinear | 14. Linear |
| 3. Linear | 9. Linear | 15. Linear |
| 4. Nonlinear | 10. Nonlinear | 16. Nonlinear |
| 5. Linear | 11. Linear | 17. straight line |
| 6. Nonlinear | 12. Nonlinear | 18. parabola |

Step-by-Step Explanations

1. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Form $y = mx + b$, first power: linear. So the final answer is Linear.
2. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is x is squared: nonlinear. So the final answer is Nonlinear.
3. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $y = -4x$ fits $y = mx + b$: linear. So the final answer is Linear.
4. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is x is cubed: nonlinear. So the final answer is Nonlinear.
5. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is A constant gives a flat line: linear. So the final answer is Linear.
6. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is x is in the denominator: nonlinear. So the final answer is Nonlinear.
7. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is First power, $y = mx + b$ form: linear. So the final answer is Linear.
8. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is x is an exponent: nonlinear. So the final answer is Nonlinear.
9. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $y = 7 - x$ is $y = -x + 7$: linear. So the final answer is Linear.
10. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is A square root curves: nonlinear. So the final answer is Nonlinear.
11. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Equal steps mean a constant rate: linear. So the final answer is Linear.
12. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Differences 3, 5, 7 change: nonlinear. So the final answer is Nonlinear.
13. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Contains x^2 : nonlinear. So the final answer is Nonlinear.
14. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Fits $y = mx + b$: linear. So the final answer is Linear.
15. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Constant speed gives a straight line: linear. So the final answer is Linear.
16. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Doubling is exponential: nonlinear. So the final answer is Nonlinear.
17. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $y = mx + b$ graphs as a straight line. So the final answer is straight line.
18. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is $y = x^2$ graphs as a parabola. So the final answer is parabola.



Keep Building FTCE General Knowledge Math Skills

Recommended Effortless Math resources



The Most Comprehensive
FTCE Math
Preparation Bundle

This perfect bundle contains

- ✓ FTCE Math for Beginners 2026
- ✓ FTCE Math Practice Workbook 2026
- ✓ FTCE Math Full Study Guide 2024-2025
- ✓ FTCE Math in 10 Days!

Visit www.EffortlessMath.com for Online Math Practice

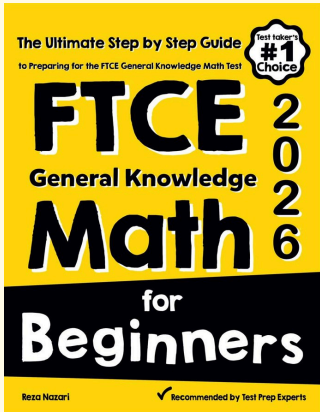
Reza Nazari

The Most Comprehensive FTCE Math Preparation Bundle



Scan Me
Download Instantly

STUDENT FAVORITE - FTCE General Knowledge Math for Beginners



The Ultimate Step by Step Guide
to Preparing for the FTCE General Knowledge Math Test

FTCE 2026
General Knowledge
Math 2026
for
Beginners

Reza Nazari

Test Prep #1 Choice


Recommended by Test Prep Experts

FTCE General Knowledge Math for Beginners 2026

Step-by-step lessons, topic practice, and full review support for students who want a calm path through FTCE General Knowledge Math preparation.

A strong companion for self-study, tutoring, homework, and targeted review.

PDF Edition



Scan Me
Download Instantly