



Linear Equations Practice

Name: _____

Grade: 8

Date: _____

*Linear equations help us model, predict, and solve real-life problems.
Solve for unknowns, Graph relationships, Analyze patterns, and Reason about solutions.*

Use the quick checks, try the mini-quizzes, and check your answers below!

Part 1 · Solve Linear Equations SOLVE

1. Solve for x : $x + 7 = 15$

2. Solve for y : $3y = 21$

3. Solve for x : $2x - 5 = 13$

4. Solve for a : $4a + 8 = 32$

5. Solve for b : $5b - 10 = 25$

6. Solve for x : $2x + 3x = 25$

Part 2 · Graphing Linear Equations GRAPH

7. Graph: $y = 2x$ for $x = 0, 1, 2, 3$.

8. **Graph:** $y = -x + 4$ for $x = 0, 2, 4$.

9. **Graph:** $y = x + 3$ for $x = 1, 2, 3$.

10. **Graph:** $y = 3x - 2$ for $x = 0, 1, 2$.

11. **Graph:** $y = 0.5x$ for $x = 2, 4, 6$.

12. **Graph:** $y = -2x + 5$ for $x = 0, 1, 2$.

Part 3 · Tables & Contexts

TABLES

13. **Fill the table:** $y = 3x + 2$ for $x = 0, 1, 2, 3$.

14. **Fill the table:** $y = -x + 4$ for $x = 0, 1, 2, 3$.

15. **Write the equation:** A taxi charges \$3 plus \$2 per mile. What is the cost y for x miles?

16. **Find y :** If $y = 2x + 1$, what is y when $x = 5$?

17. **Find x :** If $y = 4x - 7$, what is x when $y = 9$?

18. **Find x :** If $y = 0.5x + 2$, what is x when $y = 5$?

Part 4 · Error Analysis

ERROR

19. **Error:** Solve $2x+5=15$ as $x=10$. What is the correct answer and mistake?

20. **Error:** Graph $y=2x+3$ as a curve. What is the correct graph and why?

21. **Error:** Table for $y=3x+2$, $x=2$ gives $y=8$. Is this correct? Why or why not?

Part 5 · Challenge & Reflection CHALLENGE

22. **Find x :** $4x+7=31$

23. **Find y :** $y=2x+5$, $x=7$

24. **Find x :** $y=3x-2$, $y=10$

25. **Reflection:** What strategy helps you most with linear equations?

Part 6 · Real World Practice REAL WORLD

26. Saving for a Bike

Mia wants to buy a bike for \$120. She saves \$15 each week. Write an equation for her total savings y after x weeks. How many weeks until she can buy the bike?

Which equation models Mia's savings?

☐ $y=15x$

☐ $y=120x$

☐ $y=x+15$

27. School Dance Tickets

Tickets cost \$6 each. The school wants to raise \$300. Write an equation for total money y if x tickets are sold. How many tickets do they need to sell?

Which equation models the money raised?

28. Earning Allowance

You get \$10 per week for chores. After 5 weeks, how much do you have?

Write the equation and solve.

How much money after 5 weeks?

29. Sharing Pizza

A pizza place charges \$8 per pizza plus \$2 delivery fee. Write an equation for total cost y for x pizzas. If you order 3 pizzas, what is the total cost?

What is the total cost for 3 pizzas?

30. Field Trip Fundraiser

Your class sells bracelets for \$4 each to raise \$200 for a field trip. Write an equation for total money y if x bracelets are sold. How many bracelets do you need to sell?

How many bracelets to raise \$200?

Answer Key

1. 8
2. 7
3. 9
4. 6
5. 7
6. 5
7. (0,0),(1,2),(2,4),(3,6)
8. (0,4),(2,2),(4,0)
9. (1,4),(2,5),(3,6)
10. (0,-2),(1,1),(2,4)
11. (2,1),(4,2),(6,3)
12. (0,5),(1,3),(2,1)
13. (0,2),(1,5),(2,8),(3,11)
14. (0,4),(1,3),(2,2),(3,1)
15. $y=2x+3$
16. 11
17. 4
18. 6
19. $x=5$ / subtracted not divided
20. Straight line / linear not curve
21. $y=8$ / should be $y=8$
22. 6
23. 19
24. 4
25. Varies
26. $y=15x$; 8 weeks ($15x=120$)
27. $y=6x$; 50 tickets ($6x=300$)
28. $y=10x$; \$50 ($10x=50$)
29. $y=8x+2$; \$26 ($8x+2=26$)
30. $y=4x$; 50 bracelets ($4x=200$)

Accept equivalent forms. Reflection varies.