

Equations and Equality

One-variable equations, preserving equality, and inverse operations.

Name _____ Date _____

32 main 2-up grid 2 pages

Completion Reward



Shown here as a small pack artifact, not a preview destination.

1. Why is it valid to add the same number to both sides of an equation?

- A. Doing the same thing to both sides preserves equality.
- B. It removes the equals sign.
- C. It isolates the variable in one step every time.
- D. It turns the equation into an identity.

4. Solve $x + 5 = 12$. Answer with a number.

7. Which equation is true for every value of x ?

- A. $2x + 1 = 2x + 3$
- B. $x + 4 = x - 4$
- C. $3(x + 2) = 3x + 6$
- D. $5x = 5$

10. Which equation is true for every x ?

- A. $x + 4 = 10$
- B. $2x + 1 = 7$
- C. $3(x + 2) = 3x + 6$
- D. $5x = 20$

13. What is the best next step to solve $2(x - 3) = 14$?

- A. Add 3 to both sides.
- B. Multiply both sides by 3.
- C. Subtract 14 from both sides.
- D. Divide both sides by 2.

16. What is the best next step to solve $4(x + 2) = 20$?

- A. Divide both sides by 4
- B. Add 2 to both sides
- C. Subtract x from both sides
- D. Set $x = 20$

19. A student subtracts x from both sides of $4x + 2 = x + 14$ and writes $4 + 2 = 14$. What is wrong?

- A. x cannot be subtracted from both sides.
- B. The 2 should also become x .
- C. The equation should become $4x = 12$.
- D. $4x - x$ is $3x$, so the equation should become $3x + 2 = 14$.

2. What does it mean for $x = 4$ to solve an equation?

- A. It is the only number that can appear in an equation.
- B. It means the equation has no variables.
- C. It changes the equation into an inequality.
- D. It makes the equation true when substituted in.

5. Solve $4x = 20$. Answer with a number.

8. Which equation has no solution?

- A. $x + 3 = 9$
- B. $5x = 20$
- C. $3x - 2 = 10$
- D. $2(x + 1) = 2x + 5$

11. Which equation is solved by $x = 4$?

- A. $3x - 5 = 4$
- B. $5x = 15$
- C. $2x + 1 = 9$
- D. $x/2 + 1 = 5$

14. What is the best next step to solve $6 - 3x = 15$?

- A. Add $3x$ to both sides.
- B. Divide both sides by 6.
- C. Subtract 6 from both sides.
- D. Square both sides.

17. What is the best next step to solve $2x - 4 = x + 7$?

- A. Add 4 to the left side only.
- B. Subtract x from both sides.
- C. Multiply everything by 2.
- D. Move the 7 to the left and make it negative.

20. A student solves $2x + 3 = 11$ by writing $2x = 14$. What is wrong?

- A. They should divide first.
- B. They should multiply both sides by 2.
- C. There is no mistake.
- D. They should subtract 3, not add 3.

3. Does $x = 3$ solve $2x + 1 = 7$?

- A. No
- B. Only if x is negative
- C. Cannot tell
- D. Yes

6. What does it mean if an equation is an identity?

- A. The equation has exactly one solution.
- B. The equation has no solution.
- C. The variable must equal 0.
- D. Every value of the variable makes the equation true.

9. Which equation has no solution?

- A. $2x + 3 = 2x + 3$
- B. $x + 4 = 10$
- C. $3x = 12$
- D. $2x + 3 = 2x + 5$

12. Solve $d = rt$ for t .

- A. $t = r/d$
- B. $t = d - r$
- C. $t = d/r$
- D. $t = dr$

15. What is the best next step to solve $3x + 5 = 17$?

- A. Add 5 to both sides.
- B. Divide both sides by 3.
- C. Multiply both sides by 3.
- D. Subtract 5 from both sides.

18. A student solves $3x - 4 = 11$ and writes $3x = 7$ after adding 4. What is wrong?

- A. $11 + 4$ is 15, so the next line should be $3x = 15$.
- B. You should subtract 4 instead of adding 4.
- C. The coefficient 3 should be added to both sides first.
- D. The equation has no solution.

21. How many solutions does $2(x + 5) = 2x + 10$ have?

- A. One solution: $x = 5$
- B. No solution
- C. Infinitely many solutions
- D. One solution: $x = 0$

22. Solve $-x + 8 = 3$.

- A. $x = 5$
- B. $x = -5$
- C. $x = 11$
- D. $x = -11$

23. Solve $x/3 + 5 = 9$. Answer with a number.

24. Solve $5 - 2x = -9$. Answer with a number.

25. Solve $4(x + 1) = 28$. Answer with a number.

26. Solve $7x + 9 = 5x + 21$. Answer with a number.

27. Solve $0.5x + 4 = 10$. Answer with a number.

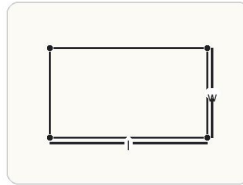
28. Solve $2x + 3 = 11$. Answer with a number.

29. Solve $3x + 5 = 2x + 11$. Answer with a number.

30. If $A = lw$, solve for w . Answer as an equation.

31. Solve $3(x - 2) + 4 = 19$. Answer with a number.

32. Solve $A = lw$ for w . Answer in the form $w = \dots$



Area equals length times width, so dividing by l isolates w .