

Multi-Step Equations

Name: _____ Date: _____ Score: _____ / 18

Quick Review and Helpful Hints

To solve, first simplify each side: clear parentheses with the distributive property and combine like terms. Then undo the operations in reverse order – add or subtract to move constants, and multiply or divide to free the variable. If the variable appears on both sides, move all variable terms to one side first.

▶ **Example:** Solve $4(x - 2) + 6 = 18$. **Work:** Distribute: $4x - 8 + 6 = 18$. Combine like terms: $4x - 2 = 18$. Add 2: $4x = 20$. Divide by 4: $x = 5$.
 ★ **Answer:** $x = 5$



Practice Problems

Solve each equation for the variable.

- | | |
|---|---|
| <p>1. $2x + 3 = 11$ _____</p> <p>2. $3x - 5 = 16$ _____</p> <p>3. $5x + 2 = 22$ _____</p> <p>4. $4x - 7 = 9$ _____</p> <p>5. $2x + 3x = 20$ _____</p> <p>6. $7x - 2x = 15$ _____</p> <p>7. $2(x + 4) = 18$ _____</p> | <p>8. $3(x - 1) = 12$ _____</p> <p>9. $2x + 5 = x + 9$ _____</p> <p>10. $5x - 3 = 2x + 9$ _____</p> <p>11. $4(x + 2) = 2x + 14$ _____</p> <p>12. $3x + 7 = 2(x + 5)$ _____</p> <p>13. $2(2x - 1) + 3 = 13$ _____</p> <p>14. $6x - 2(x - 1) = 14$ _____</p> |
|---|---|

Word Problems

15. The sum of a number and 7, then doubled, is 26. Find the number. _____
16. A taxi charges \$3 plus \$2 per mile. A ride costs \$17. How many miles was it? _____
17. A rectangle's perimeter is 30. Its length is 3 more than its width. Find the width. _____
18. Five less than three times a number is 16. Find the number. _____



Answer Keys

- | | | |
|------------|-------------|-------------|
| 1. $x = 4$ | 7. $x = 5$ | 13. $x = 3$ |
| 2. $x = 7$ | 8. $x = 5$ | 14. $x = 3$ |
| 3. $x = 4$ | 9. $x = 4$ | 15. 6 |
| 4. $x = 4$ | 10. $x = 4$ | 16. 7 miles |
| 5. $x = 4$ | 11. $x = 3$ | 17. 6 |
| 6. $x = 3$ | 12. $x = 3$ | 18. 7 |

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 Subtract 3 from both sides: $2x = 8$. Then divide by 2: $x = 4$. So the final answer is $x = 4$.

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 Add 5 to both sides: $3x = 21$. Divide by 3: $x = 7$. So the final answer is $x = 7$.

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 Subtract 2: $5x = 20$. Divide by 5: $x = 4$. So the final answer is $x = 4$.

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 Add 7: $4x = 16$. Divide by 4: $x = 4$. So the final answer is $x = 4$.

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 Combine like terms first: $5x = 20$. Divide by 5: $x = 4$. So the final answer is $x = 4$.

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 Combine: $5x = 15$. Divide by 5: $x = 3$. So the final answer is $x = 3$.

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 Distribute: $2x + 8 = 18$. Subtract 8: $2x = 10$. Divide by 2: $x = 5$. So the final answer is $x = 5$.

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 Distribute: $3x - 3 = 12$. Add 3: $3x = 15$. Divide by 3: $x = 5$. So the final answer is $x = 5$.

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 Subtract x from both sides: $x + 5 = 9$. Subtract 5: $x = 4$. So the final answer is $x = 4$.

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 Subtract $2x$: $3x - 3 = 9$. Add 3: $3x = 12$. Divide by 3: $x = 4$. So the final answer is $x = 4$.

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 Distribute: $4x + 8 = 2x + 14$. Subtract $2x$: $2x + 8 = 14$. Subtract 8: $2x = 6$, so $x = 3$. So the final answer is $x = 3$.

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 Distribute the right side: $3x + 7 = 2x + 10$. Subtract $2x$: $x + 7 = 10$, so $x = 3$. So the final answer is $x = 3$.

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 Distribute: $4x - 2 + 3 = 13$, so $4x + 1 = 13$. Subtract 1: $4x = 12$, $x = 3$. So the final answer is $x = 3$.

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 Distribute the -2 : $6x - 2x + 2 = 14$, so $4x + 2 = 14$. Subtract 2: $4x = 12$, $x = 3$. So the final answer is $x = 3$.

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 "Doubled" means $2(x + 7) = 26$. Divide by 2: $x + 7 = 13$. Subtract 7: $x = 6$. So the final answer is 6.

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 Cost is $3 + 2m = 17$. Subtract 3: $2m = 14$. Divide by 2: $m = 7$ miles. So the final answer is 7 miles.

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 Perimeter: $2(w + (w + 3)) = 30$, so $4w + 6 = 30$. Then $4w = 24$ and $w = 6$. So the final answer is 6.

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 "Five less than three times a number" is $3x - 5 = 16$. Add 5: $3x = 21$, so $x = 7$. So the final answer is 7.



Keep Building CLEP College Mathematics Skills

Recommended Effortless Math resources



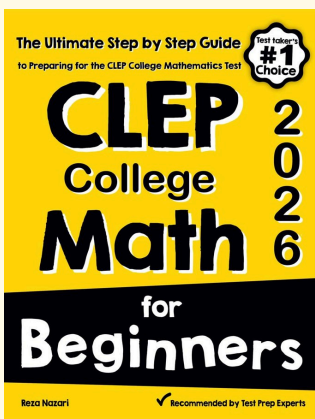
CLEP College Mathematics Test Prep Bundle

Use the complete CLEP College Mathematics resource for review, worked examples, extra practice, and test-style questions after each worksheet.



Scan Me
Download Instantly

STUDENT FAVORITE - CLEP College Mathematics for Beginners



CLEP College Mathematics for Beginners 2026

Step-by-step lessons, topic practice, and full review support for students who want a calm path through CLEP College Mathematics preparation.

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

PDF Edition



Scan Me
Download Instantly