Worksheet | Algebra

Solving and checking linear equations

Name: _____ Date: _____

8 questions | 31 marks | Show your working.

Use exact values where possible. Simplify fractions and state units when required.

1. Solve $x + 9 = 23$. Name the inverse operation, show a balanced equation and verify your solution by substitution. [3 marks]

2. Solve $y - 8 = 17$. Explain why you add rather than subtract 8, then check your answer. [3 marks]

3. Solve $6p = 54$. Show the operation applied to both sides and check by substitution. [3 marks]

4. A number n satisfies $\frac{n}{4} = 7$. Solve the equation and check your answer. Explain why dividing 7 by 4 would use the wrong inverse operation. [4 marks]

5. Solve $4a + 7 = 35$. State the two inverse operations in order, show your working and check the solution. [4 marks]

6. Solve $\frac{b}{3} - 2 = 4$. Show how you undo each operation, then verify your answer in the original equation. [4 marks]

7. Amira claims that $t = 8$ solves $3t + 5 = 23$. Check her claim by substitution. If it fails, solve the equation and verify the correct answer. [5 marks]

8. A group pays a fixed booking fee of 8 dollars and 3 dollars per passenger for a shuttle trip. The total bill is 35 dollars. Define a variable for the number of passengers, form an equation, solve it and check the total cost. [5 marks]