Year 5 · Algebra: Balancing and Growing Patterns

Name: _____ Date: _____

Hi there! This sheet helps you compare numbers with <, >, and =, fill in the missing parts of number sentences, and continue growing patterns. Take your time and check your work!

Warm-up

1. Put the correct symbol (<, >, or =) between the numbers: 4,506 ☐ 4,560

2. Fill in the missing number: 25 + ☐ = 40

3. Is this true or false? 7 × 3 = 20 + 1

4. Continue this growing pattern for two more terms: 6, 10, 14, 18, ☐, ☐

Practice

5. Put the correct symbol (<, >, or =) between the two expressions: 2,456 + 3,120 ☐ 3,456 + 2,930

6. Put the correct symbol (<, >, or =) between: 2,456 × 2 ☐ 1,228 × 4

7. Find the missing number: 999,999 − ☐ = 899,999

8. Describe this pattern in words, then write the next two terms: 3, 4.5, 6, 7.5, ☐, ☐

9. At the Avondale Sunday market, Mereana saves money in her jar. She starts with $12 and adds $8 every week. How much is in her jar after 4 weeks of adding? Write the growing pattern.

10. Tane buys 3 packs of feijoas with 6 feijoas in each pack. Hine buys 2 packs with 9 feijoas in each pack. Use <, >, or = to compare who has more feijoas: Tane's total ☐ Hine's total.

Challenge

11. A pattern starts at 100 and is HALVED each step: 100, 50, 25, ☐, ☐. Write the next two terms and describe the rule.

12. Find the missing number that makes this true: 15 + ☐ = 4 × 12. Explain your steps.

Answer key (for parents and tutors)

1. Put the correct symbol (<, >, or =) between the numbers: 4,506 ☐ 4,560
   Compare place values. Both have 4 thousands and 5 hundreds. Next digit: 0 tens vs 6 tens, so 4,506 is smaller. Answer: 4,506 < 4,560

2. Fill in the missing number: 25 + ☐ = 40
   We need what adds to 25 to make 40. 40 − 25 = 15. Answer: 25 + 15 = 40

3. Is this true or false? 7 × 3 = 20 + 1
   Work out both sides. Left: 7 × 3 = 21. Right: 20 + 1 = 21. Both equal 21, so the sentence is TRUE.

4. Continue this growing pattern for two more terms: 6, 10, 14, 18, ☐, ☐
   Each term increases by a constant of 4. 18 + 4 = 22, then 22 + 4 = 26. Answer: 22, 26

5. Put the correct symbol (<, >, or =) between the two expressions: 2,456 + 3,120 ☐ 3,456 + 2,930
   Left side: 2,456 + 3,120 = 5,576. Right side: 3,456 + 2,930 = 6,386. Since 5,576 is smaller, the answer is: 2,456 + 3,120 < 3,456 + 2,930

6. Put the correct symbol (<, >, or =) between: 2,456 × 2 ☐ 1,228 × 4
   Left side: 2,456 × 2 = 4,912. Right side: 1,228 × 4 = 4,912. Both are equal. Answer: 2,456 × 2 = 1,228 × 4

7. Find the missing number: 999,999 − ☐ = 899,999
   The difference between the two numbers is what was subtracted. 999,999 − 899,999 = 100,000. Answer: 999,999 − 100,000 = 899,999

8. Describe this pattern in words, then write the next two terms: 3, 4.5, 6, 7.5, ☐, ☐
   Each term increases by a constant of 1.5 (3 → 4.5 is +1.5, and so on). Next terms: 7.5 + 1.5 = 9, then 9 + 1.5 = 10.5. Answer: the pattern adds 1.5 each time; next terms are 9 and 10.5

9. At the Avondale Sunday market, Mereana saves money in her jar. She starts with $12 and adds $8 every week. How much is in her jar after 4 weeks of adding? Write the growing pattern.
   Start: $12. Add $8 each week: Week 1: $12 + $8 = $20. Week 2: $20 + $8 = $28. Week 3: $28 + $8 = $36. Week 4: $36 + $8 = $44. The pattern is 12, 20, 28, 36, 44. After 4 weeks she has $44.

10. Tane buys 3 packs of feijoas with 6 feijoas in each pack. Hine buys 2 packs with 9 feijoas in each pack. Use <, >, or = to compare who has more feijoas: Tane's total ☐ Hine's total.
    Tane: 3 × 6 = 18 feijoas. Hine: 2 × 9 = 18 feijoas. They have the same amount. Answer: Tane's total = Hine's total (both 18)

11. A pattern starts at 100 and is HALVED each step: 100, 50, 25, ☐, ☐. Write the next two terms and describe the rule.
    This is a geometric pattern where each term is divided by 2. 25 ÷ 2 = 12.5, then 12.5 ÷ 2 = 6.25. Answer: next terms are 12.5 and 6.25; the rule is 'divide by 2 each time' (or halve).

12. Find the missing number that makes this true: 15 + ☐ = 4 × 12. Explain your steps.
    First work out the right side: 4 × 12 = 48. Now the sentence is 15 + ☐ = 48. To find the missing number, subtract: 48 − 15 = 33. Answer: 15 + 33 = 48, so the missing number is 33.