MATHS WIZARD

Number Patterns & Algebra

Book 1

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TEACH YOUR CHILDREN WELL

Sample Booklet

NOTE: This is just a sample booklet. It ONLY CONTAINS A SMALL NUMBER OF PAGES from the COMPLETE BOOKLET.
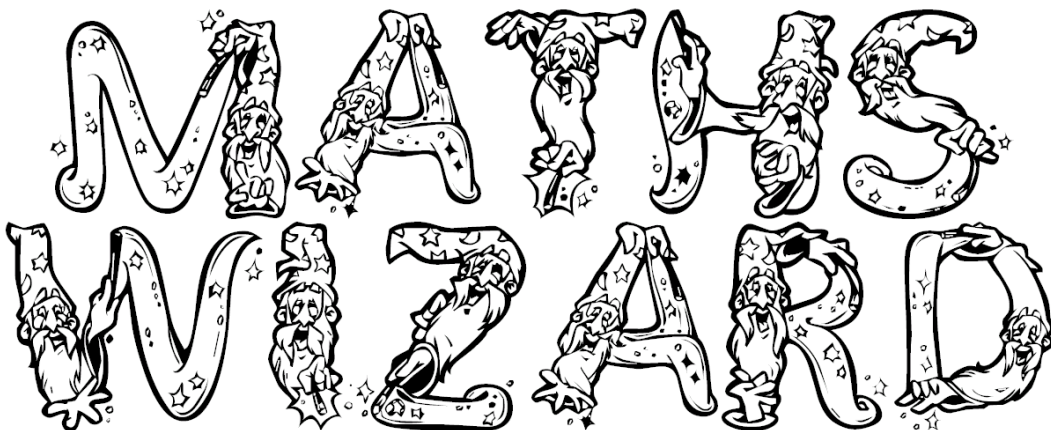
Series

Patterns and Algebra – 1 Maths Wizard

Pre-test 1 and Post-test 1	Number patterns – 1-99
Pre-test 2 and Post-test 2	$x + n = y$, $x - n = y$.
Pre-test 3 and Post-test 3	Written algebra problems
Pre-test 4 and Post-test 4	Simple algebra equations
Pre-test 5 and Post-test 5	More challenging word problem

Patterns and Algebra 1 – 5	Number patterns with numbers 1 – 99. Rules involve adding or subtracting from 1 – 10.
Patterns and Algebra 6 – 10	$X + N = Y$ or $X - N = Y$ Using numbers 2 – 20.
Patterns and Algebra 11 – 15	Written algebra problems. $n + x = y$, $n - x = y$ $x + n = y$, $x - n = y$ Using numbers 2 – 20.
Patterns and Algebra 16 – 20	Algebra Equations
Patterns and Algebra 21 – 25	More challenging word problems. Numbers 2 – 20.

Outcomes

- Sequencing numbers and completing patterns
- Solving simple algebraic problems with a missing number
- Solving word problems using simple algebraic skills
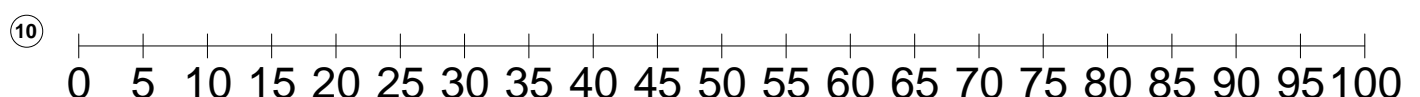- Completes simple number sentences by calculating missing values
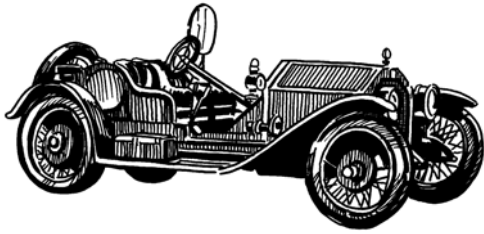
Number Lines

Tongue Twister: How much wood could a woodchuck chuck, if a woodchuck could chuck wood? It would chuck as much as a woodchuck could, if a woodchuck could chuck wood.

Use these to help you solve some of the problems.
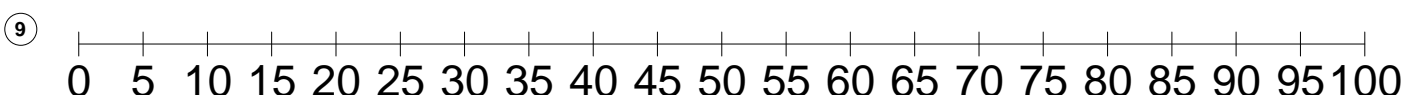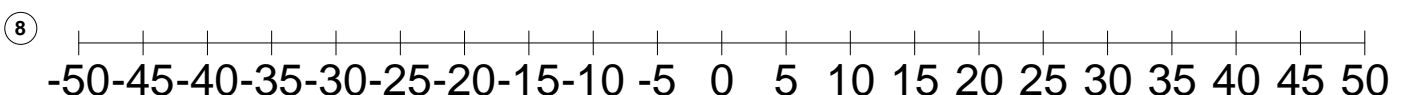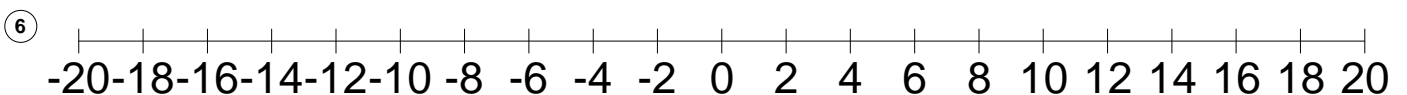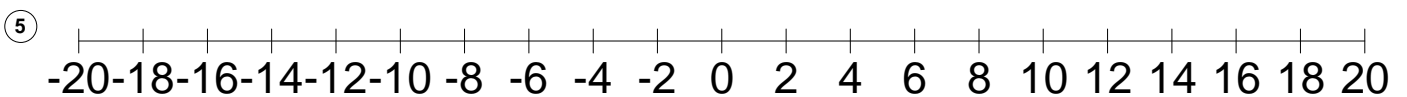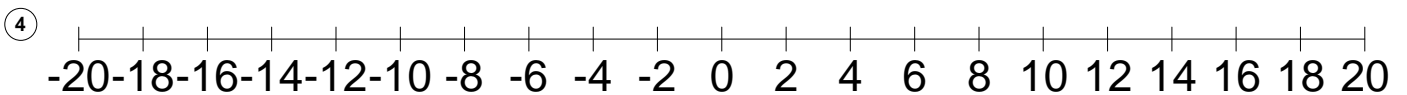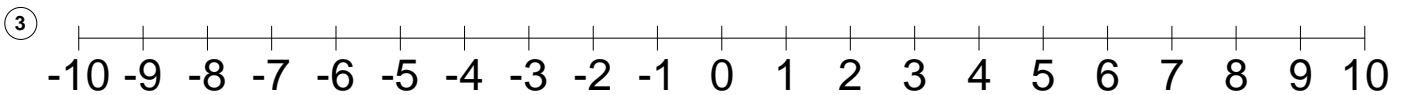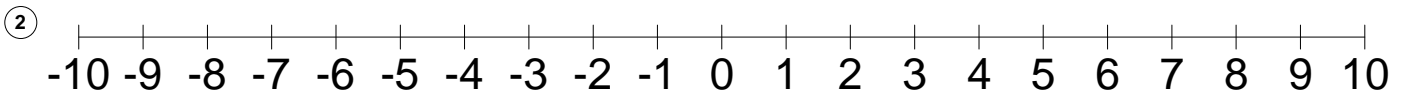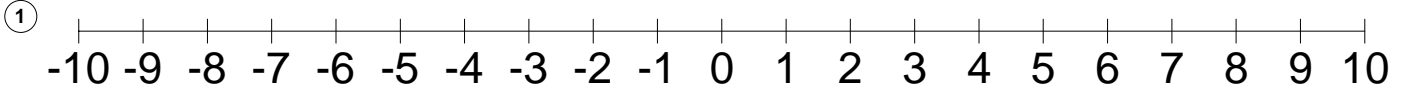
① -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

② -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

③ -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

④ -20 -18 -16 -14 -12 -10 -8 -6 -4 -2 0 2 4 6 8 10 12 14 16 18 20

⑤ -20 -18 -16 -14 -12 -10 -8 -6 -4 -2 0 2 4 6 8 10 12 14 16 18 20

⑥ -20 -18 -16 -14 -12 -10 -8 -6 -4 -2 0 2 4 6 8 10 12 14 16 18 20

⑦ -50 -45 -40 -35 -30 -25 -20 -15 -10 -5 0 5 10 15 20 25 30 35 40 45 50

⑧ -50 -45 -40 -35 -30 -25 -20 -15 -10 -5 0 5 10 15 20 25 30 35 40 45 50

⑨ 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

⑩ 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

    Score:

Name: _____   Date: _____

Patterns and Algebra Pre-Test 1

What has many eyes but cannot see? A potato!

Number Patterns involve adding or subtracting from 1-9.

① 93, 85, 77, 69, 61, 53, 45,   __ , __

② 3, 6, 9, 12, 15, 18, 21,   __ , __

③ 66, 62, 58, 54, 50, 46, 42,   __ , __

④ 85, 77, 69, 61, 53, 45, 37,   __ , __

⑤ 29, 35, 41, 47, 53, 59, 65,   __ , __

⑥ 83, 81, 79, 77, 75, 73, 71,   __ , __

⑦ 3, 7, 11, 15, 19, 23, 27,   __ , __

⑧ 11, 19, 27, 35, 43, 51, 59,   __ , __

⑨ 15, 23, 31, 39, 47, 55, 63,   __ , __

⑩ 16, 23, 30, 37, 44, 51, 58,   __ , __

⑪ 90, 81, 72, 63, 54, 45, 36,   __ , __

⑫ 30, 34, 38, 42, 46, 50, 54,   __ , __

⑬ 79, 70, 61, 52, 43, 34, 25,   __ , __

⑭ 99, 92, 85, 78, 71, 64, 57,   __ , __

⑮ 78, 74, 70, 66, 62, 58, 54,   __ , __

⑯ 49, 45, 41, 37, 33, 29, 25,   __ , __

⑰ 15, 18, 21, 24, 27, 30, 33,   __ , __

⑱ 67, 62, 57, 52, 47, 42, 37,   __ , __

⑲ 10, 18, 26, 34, 42, 50, 58,   __ , __

⑳ 10, 16, 22, 28, 34, 40, 46,   __ , __

Score: _____

Patterns and Algebra Pre-test 2

What's gray and zooms through the jungle at 10 miles per hour? An elephant on a motor bike!

$x + n = y$ or $x - n = y$

1. $y - 16 = -10$ _____

2. $x + 18 = 30$ _____

3. $x - 18 = -16$ _____

4. $z + 14 = 26$ _____

5. $z + 7 = 13$ _____

6. $z + 10 = 22$ _____

7. $x + 15 = 24$ _____

8. $x - 6 = 6$ _____

9. $z - 17 = -12$ _____

10. $z - 2 = 9$ _____

11. $y - 4 = 14$ _____

12. $z - 17 = -6$ _____

13. $z + 3 = 19$ _____

14. $x - 10 = 2$ _____

15. $z - 7 = -4$ _____

16. $z + 15 = 22$ _____

17. $z - 6 = 13$ _____

18. $y + 7 = 15$ _____

19. $x + 5 = 22$ _____

20. $x + 18 = 28$ _____

Score: _____

Patterns and Algebra Pre-test 3

What do you call a train made out of bubble gum? A Choo-Choo (chew-chew) Train!

$x + n = y$ or $x - n = y$

① _____ Four more than a number is 15. What is the number?

② _____ Four less than a number is 19. Find the number.

③ _____ A number diminished by 5 is 11. Find the number.

④ _____ A number increased by three is 13. Find the number.

⑤ _____ Six more than a number is 10. What is the number?

⑥ _____ Seventeen less than a number is 18. Find the number.

⑦ _____ A number decreased by 12 is 17. Find the number.

⑧ _____ A number increased by 18 is 33. Find the number.

⑨ _____ Five more than a number is 21. What is the number?

⑩ _____ Eight less than a number is 8. Find the number.

⑪ _____ A number diminished by 3 is 13. Find the number.

⑫ _____ A number increased by eight is 15. Find the number.

⑬ _____ Fifteen more than a number is 24. What is the number?

⑭ _____ Nineteen less than a number is 15. Find the number.

⑮ _____ A number diminished by 17 is 5. Find the number.

⑯ _____ A number increased by five is 18. Find the number.

⑰ _____ Twelve more than a number is 29. What is the number?

⑱ _____ Thirteen less than a number is 18. Find the number.

⑲ _____ A number diminished by 16 is 3. Find the number.

⑳ _____ A number increased by 14 is 32. Find the number.

Score: _____

Patterns and Algebra Pre-test 4

Why did the boy throw the clock out the window? To see time fly!

x + n = y or x - n = y AND 5z + 6 = 21 etc.

① $x + 14 = 26$ _____

② $3y - 14 = 10$ _____

③ $3y - 17 = 31$ _____

④ $3z - 5 = 25$ _____

⑤ $z + 6 = 24$ _____

⑥ $9z + 12 = 129$ _____

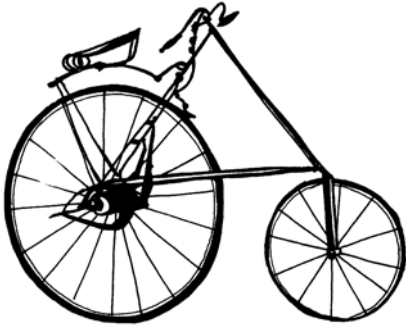⑦ $4x - 7 = 61$ _____

⑧ $5 + z = 13$ _____

⑨ $y - 18 = -7$ _____

⑩ $2x + 12 = 28$ _____

⑪ $2y + 12 = 20$ _____

⑫ $3x - 15 = 21$ _____

⑬ $z + 2 = 5$ _____

⑭ $4 + y = 15$ _____

⑮ $16x - 13 = 99$ _____

⑯ $z + 2 = 10$ _____

⑰ $19y + 2 = 192$ _____

⑱ $18 + x = 34$ _____

⑲ $7 - z = -1$ _____

⑳ $4x - 12 = 32$ _____

Score:

Name: _____   Date: _____

Patterns and Algebra Pre-test 5

What's gray and zooms through the jungle at 10 miles per hour? An elephant on a motor bike!

$n + x = y$, $X \times n = y$, $n / x = y$

① _____ Twice a number is 14. What is the number?

② _____ The sum of a number and 17 is 32. Find the number.

③ _____ The quotient of a number and four is 13. Find the number.

④ _____ The product of five and a number is 40. What is the number?

⑤ _____ Three times a number is 6. What is the number?

⑥ _____ The sum of a number and 10 is 17. Find the number.

⑦ _____ The quotient of a number and seven is 17. Find the number.

⑧ _____ The product of ten and a number is 120. What is the number?

⑨ _____ Three times a number is 15. What is the number?

⑩ _____ The sum of a number and 10 is 15. Find the number.

⑪ _____ The quotient of a number and eight is 3. Find the number.

⑫ _____ The product of three and a number is 12. What is the number?

⑬ _____ Twice a number is 8. What is the number?

⑭ _____ The sum of a number and 10 is 14. Find the number.

⑮ _____ The quotient of a number and nine is 7. Find the number.

⑯ _____ The product of ten and a number is 90. What is the number?

⑰ _____ Four times a number is 16. What is the number?

⑱ _____ The sum of a number and 11 is 18. Find the number.

⑲ _____ The quotient of a number and three is 19. Find the number.

⑳ _____ The product of four and a number is 68. What is the number?

Score: _____

Patterns and Algebra Pre-Test 1

What has many eyes but cannot see? A potato!

Number Patterns involve adding or subtracting from 1-9.

① 93, 85, 77, 69, 61, 53, 45,　37, 29　(- 8)
② 3, 6, 9, 12, 15, 18, 21,　24, 27　(+ 3)
③ 66, 62, 58, 54, 50, 46, 42,　38, 34　(- 4)
④ 85, 77, 69, 61, 53, 45, 37,　29, 21　(- 8)
⑤ 29, 35, 41, 47, 53, 59, 65,　71, 77　(+ 6)
⑥ 83, 81, 79, 77, 75, 73, 71,　69, 67　(- 2)
⑦ 3, 7, 11, 15, 19, 23, 27,　31, 35　(+ 4)
⑧ 11, 19, 27, 35, 43, 51, 59,　67, 75　(+ 8)
⑨ 15, 23, 31, 39, 47, 55, 63,　71, 79　(+ 8)
⑩ 16, 23, 30, 37, 44, 51, 58,　65, 72　(+ 7)
⑪ 90, 81, 72, 63, 54, 45, 36,　27, 18　(- 9)
⑫ 30, 34, 38, 42, 46, 50, 54,　58, 62　(+ 4)
⑬ 79, 70, 61, 52, 43, 34, 25,　16, 7　(- 9)
⑭ 99, 92, 85, 78, 71, 64, 57,　50, 43　(- 7)
⑮ 78, 74, 70, 66, 62, 58, 54,　50, 46　(- 4)
⑯ 49, 45, 41, 37, 33, 29, 25,　21, 17　(- 4)
⑰ 15, 18, 21, 24, 27, 30, 33,　36, 39　(+ 3)
⑱ 67, 62, 57, 52, 47, 42, 37,　32, 27　(- 5)
⑲ 10, 18, 26, 34, 42, 50, 58,　66, 74　(+ 8)
⑳ 10, 16, 22, 28, 34, 40, 46,　52, 58　(+ 6)

　　Score:

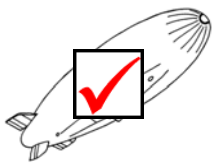## Patterns and Algebra Pre-test 2

What's gray and zooms through the jungle at 10 miles per hour? An elephant on a motor bike!

$x + n = y$ or $x - n = y$

① $y - 16 = -10$　$y = 6$
② $x + 18 = 30$　$x = 12$
③ $x - 18 = -16$　$x = 2$
④ $z + 14 = 26$　$z = 12$
⑤ $z + 7 = 13$　$z = 6$
⑥ $z + 10 = 22$　$z = 12$
⑦ $x + 15 = 24$　$x = 9$
⑧ $x - 6 = 6$　$x = 12$
⑨ $z - 17 = -12$　$z = 5$
⑩ $z - 2 = 9$　$z = 11$
⑪ $y - 4 = 14$　$y = 18$
⑫ $z - 17 = -6$　$z = 11$
⑬ $z + 3 = 19$　$z = 16$
⑭ $x - 10 = 2$　$x = 12$
⑮ $z - 7 = -4$　$z = 3$
⑯ $z + 15 = 22$　$z = 7$
⑰ $z - 6 = 13$　$z = 19$
⑱ $y + 7 = 15$　$y = 8$
⑲ $x + 5 = 22$　$x = 17$
⑳ $x + 18 = 28$　$x = 10$

　　Score:

Patterns and Algebra Pre-test 3

What do you call a train made out of bubble gum? A Choo-Choo (chew-chew) Train!

$x + n = y$ or $x - n = y$

① 11　Four more than a number is 15. What is the number?
② 23　Four less than a number is 19. Find the number.
③ 16　A number diminished by 5 is 11. Find the number.
④ 10　A number increased by three is 13. Find the number.
⑤ 4　Six more than a number is 10. What is the number?
⑥ 35　Seventeen less than a number is 18. Find the number.
⑦ 29　A number decreased by 12 is 17. Find the number.
⑧ 15　A number increased by 18 is 33. Find the number.
⑨ 16　Five more than a number is 21. What is the number?
⑩ 16　Eight less than a number is 8. Find the number.
⑪ 16　A number diminished by 3 is 13. Find the number.
⑫ 7　A number increased by eight is 15. Find the number.
⑬ 9　Fifteen more than a number is 24. What is the number?
⑭ 34　Nineteen less than a number is 15. Find the number.
⑮ 22　A number diminished by 17 is 5. Find the number.
⑯ 13　A number increased by five is 18. Find the number.
⑰ 17　Twelve more than a number is 29. What is the number?
⑱ 31　Thirteen less than a number is 18. Find the number.
⑲ 19　A number diminished by 16 is 3. Find the number.
⑳ 18　A number increased by 14 is 32. Find the number.

　　Score:

Patterns and Algebra Pre-test 4

Why did the boy throw the clock out the window? To see time fly!

$x + n = y$ or $x - n = y$ AND $5z + 6 = 21$ etc.

① $x + 14 = 26$　$x = 12$
② $3y - 14 = 10$　$y = 8$
③ $3y - 17 = 31$　$y = 16$
④ $3z - 5 = 25$　$z = 10$
⑤ $z + 6 = 24$　$z = 18$
⑥ $9z + 12 = 129$　$z = 13$
⑦ $4x - 7 = 61$　$x = 17$
⑧ $5 + z = 13$　$z = 8$
⑨ $y - 18 = -7$　$y = 11$
⑩ $2x + 12 = 28$　$x = 8$
⑪ $2y + 12 = 20$　$y = 4$
⑫ $3x - 15 = 21$　$x = 12$
⑬ $z + 2 = 5$　$z = 3$
⑭ $4 + y = 15$　$y = 11$
⑮ $16x - 13 = 99$　$x = 7$
⑯ $z + 2 = 10$　$z = 8$
⑰ $19y + 2 = 192$　$y = 10$
⑱ $18 + x = 34$　$x = 16$
⑲ $7 - z = -1$　$z = 8$
⑳ $4x - 12 = 32$　$x = 11$

　　Score:

Name: _____

Scores

	Correct	Time		Correct	Time
Pre-test 1			**Post-test 1**		
Pre-test 2			**Post-test 2**		
Pre-test 3			**Post-test 3**		
Pre-test 4			**Post-test 4**		
Pre-test 5			**Post-test 5**		
Worksheet 1			Worksheet 14		
Worksheet 2			Worksheet 15		
Worksheet 3			Worksheet 16		
Worksheet 4			Worksheet 17		
Worksheet 5			Worksheet 18		
Worksheet 6			Worksheet 19		
Worksheet 7			Worksheet 20		
Worksheet 8			Worksheet 21		
Worksheet 9			Worksheet 22		
Worksheet 10			Worksheet 23		
Worksheet 11			Worksheet 24		
Worksheet 12			Worksheet 25		
Worksheet 13					