

EQUATIONS WORKSHEETS

Table of Contents

<u>Number</u>	<u>Topic</u>
1A	Starting a Shake
1B	Continuing a Shake
1C	Operation Signs
1D	Rules for Goals
1E	Ambiguous Goals
1F	More Rules for the Goal
1G	Rules for Moving
1H	Rules for Solutions
1I	Time Limits
1J	Challenges
1K	Writing Solutions
1L	Last Cube Procedure
1M	Checking Solutions
1N	Scoring after a Challenge
2A	Odd Number of Cubes in Solutions
2B	Order of Operations
2C	Ambiguous Solutions
2D	More on Ambiguous Solutions
2E	Grouping Cubes in Solutions
2F	Use of 0, the Additive Identity
2G	Multiplication by Zero
2H	Use of 1, the Multiplicative Identity
2I	First Power and First Root
2J	Powers and Roots of Zero
2K	Powers and Roots of One
2L	Leaving "Holes" in Solutions
3A	Subtracting Larger from Smaller
3B	Adding without +
3C	Negative Times Positive
3D	Negative Times Negative
3E	Powers of Positive Integers
3F	Powers of Negative Integers
3G	Powers of -1
3H	Power of a Power
4A	Equivalent Fractions
4B	Adding and Subtracting Fractions
4C	Multiplying Fractions
4D	Dividing Fractions
4E	Multiplying without x
4F	Mixed Numbers
4G	Powers of Fractions
4H	Special Fractional Goals

5A	Square Roots
5B	Cube Roots
5C	Higher Roots
5D	Irrational Numbers (MJS only)
5E	Roots of Fractions (MJS only)
5F	Odd Roots of Negatives (MJS only)
6A	Zero Power
6B	Negative Integer Powers (MJS only)
6C	1/N Power (MJS only)
6D	Double Radicals (MJS only)
6E	Negative Indices (MJS only)
6F	Dividing without \div (MJS only)
6G	Fractional Exponents (MJS only)
6H	Negative Fractional Exponents (MJS only)
6I	Fractional Indices (MJS only)
6J	Negative Fractional Indices (MJS only)
6K	Undefined Expressions (MJS only)
6L	More on Fractional Exponents (MJS only)
6M	Simplifying Radical Expressions (MJS only)
6N	Powers of Roots
6O	Equivalent Radical Expressions (MJS only)
6P	Rationalizing Denominators (MJS only)
7A	Sideways - I
7B	Sideways - II
7C	Sideways - III (MJS only)
7D	Sideways - IV (MJS only)
7E	Upside-down - I
7F	Upside-down - II (MJS only)
7G	Upside-down - III (MJS only)
7H	0 wild - I
7I	0 wild - II
7J	0 wild - III
7K	Multiple Operation
7L	Smallest Prime - I (E only)
7M	Smallest Prime - II (E only)
7N	Smallest Prime - III (E only)
7O	Average - I
7P	Average - II
7Q	Average - III
7R	Number of Factors - I
7S	Number of Factors - II
7T	Number of Factors - III (JS only)
7U	Number of Factors - IV (JS only)
7V	Number of Factors - V (JS only)
7W	Factorial - I (EM only)
7X	Factorial - II (EM only)
7Y	Factorial - III (JS only)
7Z	Factorial - IV (JS only)

8A	Percent (EM only)
8B	Percent and Base M (M only)
8C	Decimal Point - I (EM only)
8D	Decimal Points - II (EM only)
8E	Decimal Point and Base M (M only)
8F	Two-Digit Numerals, 3-Op. Solutions (E only)
8G	L.C.M. (E only)
8H	G.C.F. (E only)
9A	Base M - I (MJS only)
9B	Base M - II (MJS only)
9C	Base M - III (MJS only)
9D	Base M - IV (MJS only)
9E	Base M - V (JS only)
9F	Base M - VI (JS only)
9G	Powers of the Base - I (MJS only)
9H	Powers of the Base - II (MJS only)
9I	Powers of the Base - III (MJS only)
9J	Powers of the Base - IV (MJS only)
9K	Red Exponent (MJS only)
9L	$AB+$ - I (MJS only)
9M	$AB+$ - II (MJS only)
9N	$AB+$ - III (MJS only)
9O	$AB+$ and Base M - I (MJS only)
9P	$AB+$ and Base M - II (JS only)
9Q	$AB+$ and Base M - III (MJS only)
9R	$AB+$ and Base M - IV (JS only)
9S	$AB+$ and Base M - V (JS only)
10A	Multiple of K - I (MJS only)
10B	Multiple of K - II (MJS only)
10C	Multiple of K - III (MJS only)
10D	Multiple of K - IV (M only)
10E	Multiple of K - V (JS only)
10F	Multiple of K - VI (JS only)
10G	Multiple of K - VII (JS only)
10H	Multiple of K - VIII (JS only)
10I	Multiple of K - IX (JS only)
10J	Multiple of K - X (JS only)
10K	Multiple of K - XI (JS only)
10L	Multiple of K - XII (JS only)
10M	Multiple of K - XIII (JS only)
10N	Multiple of K - XIV (JS only)
10O	Multiple of K - XV (JS only)
10P	Multiple of K - XVI (JS only)
10Q	Multiple of K - XVII (JS only)
10R	Multiple of K - XVIII (JS only)

The remaining worksheets are for Senior Division only:

11A	X Wild
11B	Decimal in Goal - I
11C	Decimal in Goal - II
11D	Decimal in Goal - III
11E	Log - I
11F	Log - II
11G	Log - III
11H	Log - IV
11I	Log - V
11J	Log - VI
11K	Log - VII
11L	Log - VIII
11M	Log - IX
11N	Log - X
12A	$\sqrt{\quad} = i - I$
12B	$\sqrt{\quad} = i - II$
12C	$\sqrt{\quad} = i - III$
12D	$\sqrt{\quad} = i - IV$
12E	$\sqrt{\quad} = i - V$
12F	$\sqrt{\quad} = i - VI$
12G	$\sqrt{\quad} = i - VII$
12H	$\sqrt{\quad} = i - VIII$
12I	$\sqrt{\quad} = i - IX$
12J	$\sqrt{\quad} = i - X$
12K	$\sqrt{\quad} = i - XI$
12L	$\sqrt{\quad} = i - XII$