

## Dear Teacher or Parent,

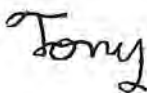
In this book, you will find a comprehensive collection of mathematics-related work-out activities and practical teaching tips for today's middle school math teachers. In an age where teachers must compete for their students' attention against a number of influences (television, video games, Internet, peer pressure and other social factors), it is even more critical to develop lessons that capture students' interest, that promote and enhance the desire for learning, and that reinforce fundamental math skills. This resource book includes 100 sensational math workouts designed especially to engage students' exploration of mathematics by providing fun thought-provoking, interesting, skill-building, math-related activities. Students will see that math can be fun and exciting.

The workout process is a vital part of any lesson. It should be an inviting, settling and stimulating process that readies students for that day's lesson. The best way to start a math lesson is with a workout that engages students with mathematics. This resource book can help turn on the "light" within students and foster curiosity for mathematics. Not only are these workouts fun, they are based on middle school math standards and curricula. Each workout is presented on a ready-to-use, reproducibles. Each workout also includes a solution key or mini-lesson with background, discussion, strategy and demonstration for solving each problem. These workouts can be easily copied as transparencies for full-class instruction and discussion.

At the end of the book are 10 practical teaching tips for today's classroom. These practical techniques and strategies address specifically the current demands and challenges facing today's teachers, particularly in large urban school settings. The tips cover a broad spectrum of critical areas, ranging from classroom management to the use of technology to parental involvement. This resource book also includes suggestions for the use of the workouts and a bi-weekly workout sheet that can be used to track the workout work.

I hope you find these workouts useful as you introduce your students to the exciting world of mathematics.

Sincerely,



Tony G. Williams, Ed.D.

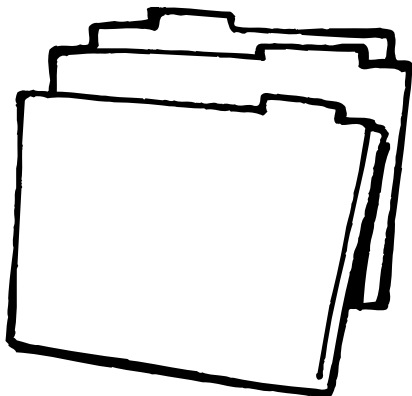
# TABLE OF CONTENTS

Activity Suggestions .....	6
Daily Workouts Sheet.....	8

## UNIT 1

### Mathematics Exploration and Curiosity

A Calculated Greeting (#1).....	9
What a Coincidence! (#2).....	9
Help Wanted (#3).....	11
For the Curious (#4).....	11
Up, Up and Away (#5).....	13
Mathematico, The Magician (#6).....	13
A Neat Calculator Trick (#7).....	15
Careers in Mathematics (#8).....	15
Factorials! (#9).....	17
Find Your Birthday (#10).....	17
Let's Rock (#11).....	19
It's Only a Trillion! (#12).....	19
Mathematicians (#13).....	21
Polygon Perfection (#14).....	21
African-American Mathematicians (#15) ...	23
True or False? (#16).....	23
Life's Minutes (#17).....	25



## UNIT 2

### Critical Thinking and Logic

Four Friends (#18) .....	25
Test Your Logical Reasoning (#19) .....	27
Is There a Connection? (#20).....	27
Spending Change (#21).....	29
Logical Sequences (#22).....	29
Brainteasers (#23).....	31
Fun at the Circus (#24) .....	31
Short and Fun! (#25) .....	33
Going to School (#26).....	33
Penny for Your Thoughts (#27) .....	35
Who Did It? (#28).....	35
What's Next? (#29) .....	37
The Great Rectangular Divide (#30) .....	37
More Brainteasers (#31) .....	39

## UNIT 3

### Sports, Games and Other Fun

Test Your Telephone Memory (#32).....	39
And the Winner Is? (#33) .....	41
Nine Lives (#34) .....	41
Golf, Anyone? (#35) .....	43
U\$A (#36) .....	43
Let's Go Bowling (#37).....	45
What's in a Name? (#38).....	45
Lottery (#39) .....	47
Unscramble (#40).....	47
Touchdown (#41).....	49
Let's Make Some Music (#42) .....	49
Tick Tock (#43).....	51
A Race to the Finish (#44).....	51
Bull's-Eye (#45) .....	53

## UNIT 4

### Math Concepts, Analysis and Computation

Math Symbols (#46)	53
Fun with Divisibility (#47)	55
Binary Notation (#48)	55
Branches of Mathematics (#49)	57
Absolute Value (#50)	57
Quadrants (#51)	59
ID Required (#52)	59
Great Graphs (#53)	61
Go Metric! (#54)	61
Domain and Range (#55)	63
Choose an Appropriate Graph (#56)	63
Order, Please (#57)	65
What's in a Graph? (#58)	65
Trying Triangles (#59)	67
When in Rome (#60)	67
Prime vs. Composite (#61)	69
Palindromes (#62)	69
Prime Factorization (#63)	71
Trigonometric Ratios (#64)	71
Multiples vs. Factors (#65)	73
Sensational Sets (#66)	73
Stem-and-Leaf Plots (#67)	75
Triangular Area (#68)	75
Digging for Square Roots (#69)	77
Pascal's Triangle (#70)	77
Deal Me In (#71)	79
A Fact of the Circle (#72)	79



## UNIT 5

### Application, Pre-Algebra and Mastery

Pizza! Pizza! (#73)	81
Working Wages (#74)	81
Everyday Conversions (#75)	83
Honor Roll (#76)	83
Tricky (#77)	85
An Age-Old Question (#78)	85
Solving Equations (#79)	87
Shopping with Leah (#80)	87
Like Signs (#81)	89
Squaring a Number Ending in 5 (#82)	89
M and M and Ms (#83)	91
Awesome Angles (#84)	91
Exponential Notation (#85)	93
You Deserve a Raise! (#86)	93
More or Less? (#87)	95
Computer Terms (#88)	95
Team Relay (#89)	97
More Computer Terms (#90)	97
Unlike Signs (#91)	99
Additive Inverse (#92)	99
Subtracting a New Way (#93)	101
Reciprocate, Please! (#94)	101
Accentuate the Positive (#95)	103
Even More Computer Terms (#96)	103
Percents to Decimals (#97)	105
Here's a Tip! (#98)	105
Carmen's Monthly Allowance (#99)	107
BINGO (#100)	107

Teaching Tips	109
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## Life's Minutes



How many minutes have you been alive?

(Assume one year has 365 days.  
We will ignore leap years for this problem.)

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## Four Friends



When four friends get together, each friend  
shakes hands with all the other friends.  
How many total handshakes will there be?

## Solution

### To get the correct answer you:

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1. Take your age in years and multiply by 365.
2. Add how many days it has been since your last birthday.
3. Then multiply by 24. Multiply that answer by 60.

Here are the approximate answers for the following ages:

12-year-old = 6,307,200 minutes

13-year-old = 6,832,800 minutes

14-year-old = 7,358,400 minutes

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## Solution

### 6 handshakes

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Remember that a handshake is mutual. When you shake hands with someone, that person is also shaking hands with you. If the four friends' names were A, B, C and D, the following handshakes would occur:

1. A and B
2. A and C
3. A and D
4. B and C
5. B and D
6. C and D

# Short and Fun!

a. What's next in this sequence?

0, 1, 1, 2, 3, 5, 8, \_\_\_\_

b. Which would you prefer, a full box of nickels or a half box of dimes?

Why? \_\_\_\_\_

c. Juan caught more fish than Maria but fewer than Sam.

Who caught the most fish? \_\_\_\_\_

Who caught the fewest? \_\_\_\_\_



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# Going to School



Terrence, Sarah and Lamont arrived at school on roller blades, a moped and a bicycle.  
The rider of the bicycle was a boy.  
On his way to school, Terrence had to stop for gas.  
How did each person get to school?

# Solution

## The answers are:

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- a. 13—Add the number that precedes the given number.
- b. If you want the most money, you should pick the half box of dimes. Dimes are smaller and take less room; therefore, more dimes will fit.
- c. Sam caught the most fish. Maria caught the fewest fish.

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# Solution

**Sarah used roller blades, Terrence rode a moped and Lamont rode a bicycle.**

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Did you make a table like the one below?

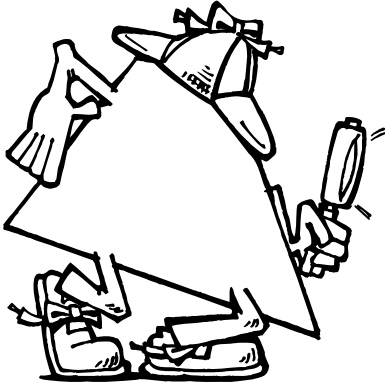
	<b>Terrence</b>	<b>Sarah</b>	<b>Lamont</b>
<b>roller blades</b>	no	yes	no
<b>moped</b>	yes	no	no
<b>bicycle</b>	no	no	yes

# Trying Triangles



The sum of the interior angles of a triangle is always equal to  $180^\circ$ .

Find the measure of the missing angle.



- a.  $30^\circ$ ,  $60^\circ$ , \_\_\_\_\_
- b.  $45^\circ$ ,  $90^\circ$ , \_\_\_\_\_
- c.  $20^\circ$ ,  $55^\circ$ , \_\_\_\_\_
- d.  $15^\circ$ ,  $70^\circ$ , \_\_\_\_\_

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# When in Rome



**Roman Numerals:** a system for writing integers used in Ancient Rome.

I = 1    V = 5    X = 10    L = 50    C = 100    D = 500    M = 1000

**Basic rule:** When a letter of lesser value comes before a greater number the values are subtracted (IV = 4).

**Directions:** Translate the following Roman numerals:

- a. VII \_\_\_\_\_
- b. IX \_\_\_\_\_
- c. XL \_\_\_\_\_
- d. DCC \_\_\_\_\_
- e. MM \_\_\_\_\_
- f. MMIX \_\_\_\_\_



## Solution

a.  $90^\circ$ ; b.  $45^\circ$ ; c.  $105^\circ$ ; d.  $95^\circ$

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a.  $30 + 60 = 90$      $180 - 90 = 90^\circ$

b.  $45 + 90 = 135$      $180 - 135 = 45^\circ$

c.  $20 + 55 = 75$      $180 - 75 = 105^\circ$

d.  $15 + 70 = 85$      $180 - 85 = 95^\circ$

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## Solution

The answers are:

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- a. VII = 7
- b. IX = 9
- c. XL = 40
- d. DCC = 700
- e. MM = 2000
- f. MMIX = 2009

