

# TABLE OF CONTENTS

About the Author.....ii  
 NCTM Standards..... iii  
 About This Book ..... vii  
 How to Use This Book ..... vii  
 Teaching Suggestions ..... vii  
 General Comments ..... viii  
 Answers..... 414

## NCTM Standards

Skills	Number and Operations	Algebra	Geometry	Measurement	Data Analysis and Probability
Analyze		64, 78, 81, 103, 104, 111, 112, 113, 114, 116, 117, 118, 151, 154, 187, 198, 209, 236, 244, 251, 269, 313	124, 131, 237	172, 173	
Angle			52, 53, 54, 237, 334, 335	172, 173, 335	
Area			254, 255	90, 91, 102, 171, 214, 219, 272, 328	
Calendar				163, 366	
Capacity <small>customary, metric</small>				108, 109, 319, 320	
Concept <small>addition, subtraction, multiplication, division</small>	6, 9, 10, 17, 18, 23, 25, 29, 30, 36, 40, 45, 46, 51, 66, 69, 74, 87, 88, 97, 110, 121, 122, 123, 224, 316, 402	27	52, 56, 77	108, 109, 157	
Congruence			264, 292, 386		
Coordinate System			22, 223, 318		
Count	17				
Critical Thinking	59, 119, 120, 128, 200, 260, 283, 359, 360	3, 11, 13, 15, 19, 24, 33, 41, 49, 74, 78, 81, 84, 87, 89, 115, 154, 162, 174, 179, 192, 256, 296, 297, 341, 345, 373, 394, 395, 408, 409, 413			60, 62, 72, 160, 161, 199, 282, 353, 412
Data Analysis <small>bar graph, line graph, survey, table, picture</small>	97, 99, 190				8, 14, 32, 61, 62, 70, 98, 100, 134, 135, 136, 150, 152, 156, 184, 195, 206, 208, 213, 220, 227, 229, 230, 240, 267, 273, 322, 325, 354, 367, 374, 375, 376, 377

Free resource from www.criticalthinking.com. Commercial redistribution prohibited

# NCTM Standards (Cont.)

## NCTM Standards

Skills	Number and Operations	Algebra	Geometry	Measurement	Data Analysis and Probability
Data Collection	127, 205, 207				70
Decimals concept, add, subtract, multiply, divide	21, 26, 82, 83, 85, 86, 88, 92, 103, 105, 125, 126, 159, 175, 176, 177, 180, 186, 231, 232, 233, 238, 257, 258, 259, 261, 262, 263, 312, 321, 326, 336, 361, 362, 389, 399, 400, 401, 407			170, 178	
Draw parallel, perpendicular, by definition			270, 291, 318, 333	331	
Equations Expression, Vocabulary	330, 411	210, 274, 286	55, 56		
Equivalence	36, 140, 141, 175, 190, 196, 198, 390, 391				
Estimation addition, subtraction, multiplication, division	130, 235, 275, 277, 369, 370, 371				
Exponents	73, 266				
Factors	122, 141, 215, 266, 268, 346				
Fractions form/vocabulary, add, subtract, multiply, divide	34, 35, 37, 71, 126, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 153, 155, 159, 175, 181, 182, 183, 185, 189, 190, 191, 193, 194, 196, 197, 198, 201, 202, 203, 204, 231, 232, 238, 249, 298, 299, 300, 301, 302, 303, 306, 307, 336, 346, 347, 348, 349, 350, 351, 352, 355, 361, 364, 372, 389, 390, 391, 393			356, 357, 358	150, 314
Graph, Table, Chart, Figure analyze, represent	23, 26, 42, 43, 73, 82, 83, 166, 181, 183, 187, 189, 193, 201, 231, 232, 233, 253, 268, 280, 284, 285, 303, 304, 305, 308, 309, 339, 361, 378, 391, 392, 393, 410	18, 20, 27	287, 291	93, 96, 102, 153, 214, 278, 279	72
Inequalities	133, 312, 401	15	53, 54		
Length customary, metric				38, 39, 106, 107, 168, 169	
Likelihood, Probability					72, 136, 314
Mean, Median, Mode					80, 134, 135, 208, 290
Money add, subtract, multiply, divide	42, 43, 44, 57, 88, 105, 127, 128, 129, 130, 205, 207, 241, 260, 262, 263, 337, 338, 339, 340, 342, 363, 365, 405	341		344	

Free resource from www.criticalthinking.com. Commercial redistribution prohibited

# NCTM Standards (Cont.)

## NCTM Standards

Skills	Number and Operations	Algebra	Geometry	Measurement	Data Analysis and Probability
Multiple	110, 121, 139, 188, 402				
Negative Numbers	224, 317				
Order	5, 133, 392	373			
Order of Operations	66, 67, 69, 137, 138, 245, 265, 379, 406				
Patterns <small>geometric, numeric</small>		16, 31, 236, 242, 243, 269, 368, 378, 383, 404	16, 29		
Percent	361, 362, 363, 364, 365				
Perimeter				90, 96, 170, 214, 272, 331	
Place Value <small>expanded notation, number form, word form</small>	1, 2, 82, 83, 85, 86, 159, 176, 177, 180, 257, 258, 259, 261, 262, 310, 311, 312, 321, 326, 336, 396, 399, 400, 401			178	
Polygon			55, 56, 79, 271, 287, 292, 384		
Prime/Composite	50, 69, 216, 217, 218				
Properties	23, 123, 217				
Reflection, Translation, Rotation			77, 291, 385		
Rounding	4, 5, 234, 235, 275, 277, 369, 370, 371				
Shapes <small>2 dimensional, 3 dimensional</small>			124, 131, 211, 212, 254, 255, 264, 294		
Signed Numbers	224, 317				
Symmetry			124, 292, 386		
Temperature <small>customary, metric</small>				93, 278, 279	
Time	119, 407			157, 158	
Variable as Unknown <small>in addition, in subtraction, in multiplication, in division</small>		75, 111, 112, 113, 114, 116, 117, 118, 209, 221, 222, 244, 295, 387, 388, 397			

Free resource from www.criticalthinking.com. Commercial redistribution prohibited

# NCTM Standards (Cont.)

## NCTM Standards

Skills	Number and Operations	Algebra	Geometry	Measurement	Data Analysis and Probability
Volume				332	132
Weight <small>customary, metric</small>				94, 95, 288, 289	
Whole Numbers <small>addition, subtraction, multiplication, division</small>	6, 9, 10, 12, 17, 18, 20, 23, 25, 27, 28, 29, 30, 31, 40, 45, 46, 47, 59, 61, 65, 69, 74, 76, 92, 97, 99, 101, 111, 112, 114, 116, 117, 118, 123, 133, 137, 138, 164, 165, 166, 167, 174, 200, 216, 218, 224, 225, 226, 228, 245, 246, 247, 248, 252, 253, 258, 265, 276, 280, 281, 283, 284, 285, 293, 295, 308, 309, 316, 323, 324, 327, 329, 354, 359, 360, 369, 370, 371, 380, 381, 382, 403, 410				
Word Problems	7, 48, 68, 76, 92, 105, 119, 120, 164, 186, 202, 221, 222, 239, 241, 250, 310, 311, 315, 330, 337, 338, 339, 340, 350, 396, 398, 405	75, 162, 274, 286, 297, 313, 341, 395	79, 211, 212, 270, 333	94, 95, 102, 106, 163, 356, 357, 358	98, 100, 134, 208, 240, 273, 374, 376, 377

Free resource from [www.criticalthinking.com](http://www.criticalthinking.com). Commercial redistribution prohibited

# Order of Operation

When there is more than one operation in a problem, there is an order that must be followed.

**Step 1** Do what is grouped inside the parentheses ( ).

**Step 2** Do all  $\times$  and  $\div$  from left to right.

**Step 3** Do all  $+$  and  $-$  from left to right.



$$\begin{array}{r}
 8 \times 2 - (5 + 6) + 1 = \\
 \phantom{8 \times 2} - 11 + 1 = \\
 \underline{16} - 11 + 1 = \\
 \phantom{\underline{16}} - 11 + 1 = \\
 \phantom{\phantom{\underline{16}}} 5 + 1 = 6
 \end{array}$$

$$\begin{array}{r}
 18 - 2 + 7 = \\
 \underline{16} + 7 = 23
 \end{array}$$

Step 3

$$\begin{array}{r}
 5 \times 4 - 4 \div 2 = \\
 \underline{20} - 2 = 18
 \end{array}$$

Step 2

Step 3

$$\begin{array}{r}
 10 - 4 \times 2 + 2 = \\
 10 - 8 + 2 = \\
 \underline{2} + 2 = 4
 \end{array}$$

Step 2

Step 3

Step 3

$$\begin{array}{r}
 20 - (3 + 2) \times 2 = \\
 20 - 5 \times 2 = \\
 20 - 10 = 10
 \end{array}$$

Step 1

Step 2

Step 3

Solve and answer the riddle below.

**d**  $180 - 43 \times 2 = \underline{\hspace{2cm}}$

**a**  $9 \times 12 + 10 \times 8 = \underline{\hspace{2cm}}$

**w**  $100 - (14 + 62) = \underline{\hspace{2cm}}$

**s**  $89 - 67 + 48 = \underline{\hspace{2cm}}$

**h**  $(40 - 19) \times 3 = \underline{\hspace{2cm}}$

**e**  $239 - (142 + 68) = \underline{\hspace{2cm}}$

**o**  $252 \div 6 \times 2 = \underline{\hspace{2cm}}$

**t**  $1,134 \div (28 - 19) = \underline{\hspace{2cm}}$

**u**  $8 \times 9 - 7 \times 7 = \underline{\hspace{2cm}}$

**m**  $(200 - 123) \div 7 = \underline{\hspace{2cm}}$

**r**  $18 - 9 \times 2 + 3 = \underline{\hspace{2cm}}$

**f**  $(85 + 19) - 6 \times 14 = \underline{\hspace{2cm}}$

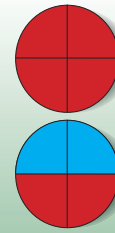
Why did the mother skunk take her baby daughter to the doctor?

$\overline{70}$	$\overline{63}$	$\overline{29}$	$\overline{24}$	$\overline{188}$	$\overline{70}$	$\overline{84}$	$\overline{23}$	$\overline{126}$
$\overline{84}$	$\overline{20}$	$\overline{84}$	$\overline{94}$	$\overline{84}$	$\overline{3}$			



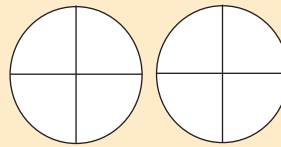
An **improper fraction** can be changed to a **mixed number** by dividing the numerator by the denominator.

$$\frac{3}{4} + \frac{3}{4} = \frac{6}{4} = 1\frac{2}{4} = 1\frac{1}{2}$$

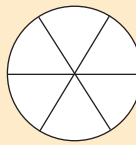


Add the like fractions, then color the figures. Where necessary, change the improper fraction to a mixed number.

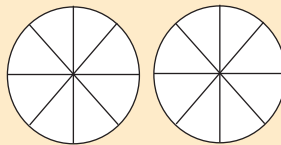
1  $\frac{3}{4} + \frac{2}{4} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$



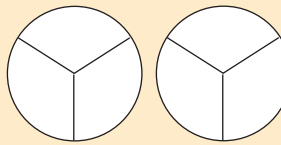
2  $\frac{2}{6} + \frac{3}{6} = \frac{\quad}{\quad}$



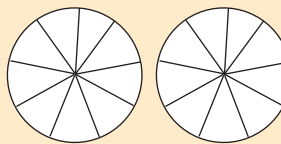
3  $\frac{7}{8} + \frac{2}{8} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$



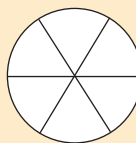
4  $\frac{2}{3} + \frac{2}{3} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$



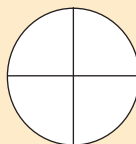
5  $\frac{7}{9} + \frac{4}{9} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$



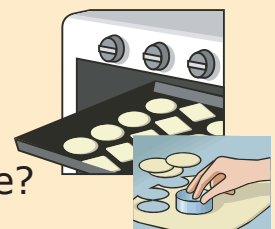
6  $\frac{1}{6} + \frac{5}{6} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$



7  $\frac{1}{4} + \frac{1}{4} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$



8 Jo uses  $\frac{1}{2}$  cup of milk to make a cookie recipe. If Jo makes 4 recipes of cookies, how much milk will she use?



Make an equation and solve.

$$\frac{\quad}{\quad} + \frac{\quad}{\quad} + \frac{\quad}{\quad} + \frac{\quad}{\quad} = \frac{\quad}{\quad}$$

$$\$2.25 \div 3 = \$.75$$

$$4.7 \text{ seconds} \div 5 = .94 \text{ seconds}$$

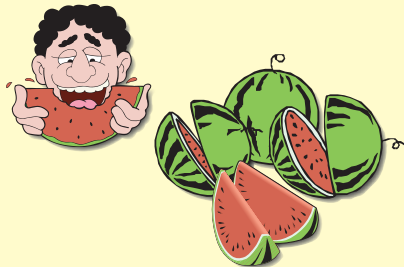
$\begin{array}{r} \underline{.75} \\ 3 \overline{) \$2.25} \\ \underline{-21} \phantom{0} \\ 15 \phantom{0} \\ \underline{-15} \phantom{0} \end{array}$	<p>← quotient →</p> <p>← dividend →</p>	$\begin{array}{r} \underline{.94} \text{ seconds} \\ 5 \overline{) 4.70} \\ \underline{-45} \phantom{0} \\ 20 \phantom{0} \\ \underline{-20} \phantom{0} \end{array}$
---	---	---

When dividing with whole numbers, the decimal point in the quotient is placed directly above the decimal point in the dividend.

Add, then divide to find the mean (average).

- At three different stores, the price per pound for a watermelon was \$1, \$1.44, and \$1.25. What was the average price per pound for a watermelon?

\_\_\_\_\_

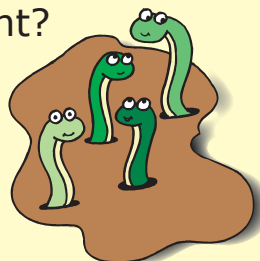


- At the race, the top two runners in the 100 meter dash had times of 12.4 seconds and 11 seconds. What was the average time for the two runners?

\_\_\_\_\_

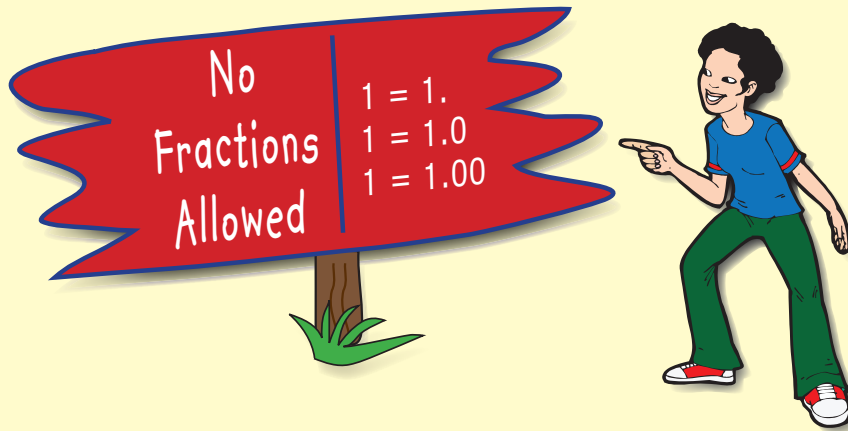
- Geoff caught worms with lengths of 9 cm, 8.2 cm, 6.3 cm, and 9.7 cm. What was the average length of the worms he caught?

\_\_\_\_\_





# WHOLE NUMBER



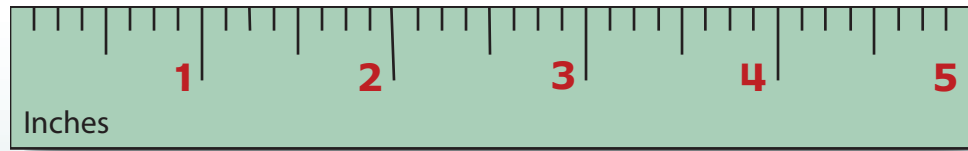
Sum the following five problems. All answers are whole numbers.

Whole Number

- |   |                               |       |
|---|-------------------------------|-------|
| 1 | $42.4 + .05 + 2.41 + .14 =$   | _____ |
| 2 | $103 + 41.9 + .09 + 1.01 =$   | _____ |
| 3 | $4.5 + 25 + 5 + 5.5 =$        | _____ |
| 4 | $1.15 + .43 + 2.17 + .25 =$   | _____ |
| 5 | $30.06 + 2.4 + 1.24 + 10.3 =$ | _____ |

Place the following decimal numbers in order from least to greatest.

- |   |              |            |            |              |
|---|--------------|------------|------------|--------------|
| 6 | .3, 30, .33  | <u>.30</u> | <u>.33</u> | <u>30.00</u> |
| 7 | 1.2, 12, .12 | _____      | _____      | _____        |
| 8 | .45, .4, 1   | _____      | _____      | _____        |



Divide 5 inches into 4 equal parts.

$$4 \overline{)5} \quad 1 \frac{1}{4}$$

$$\underline{-4}$$

$$1$$

1. Find the average height for four children in the Long family if their heights are 60, 53, 62, and 48 inches.

\_\_\_\_\_




2. How much would every person get if \$132 was divided evenly among 8 people?

\_\_\_\_\_

3. What was the average price of a chair if the chair was listed at \$287, \$349, and \$324 at three different department stores?

\_\_\_\_\_

4.  A land plot had an area of 635 square miles. If the land was divided evenly among 10 relatives, how much area would each person receive?

\_\_\_\_\_