## Rational Numbers, Ratios, and Percent

## By Bill Davidson

Fraction and Decimal EquivalencyFactors of 100HundredthsFactors of 1,000Equivalent unit fractions (thousandths)Equivalent non-unit fractions (thousandths)Unit fraction/decimal equivalencyThe opposite of an opposite (tenths)The opposite of an opposite with mixed numbers (tenths)The opposite of an opposite (hundredths)The opposite of an opposite (tenths and hundredths)
Fractions and Mixed Numbers as DecimalsConvert mixed numbers to decimals (tenths)Convert mixed numbers to decimals (hundredths)Convert mixed numbers to decimals (tenths and hundredths)
Denominators of 1,000
Denominators that are multiples of 100
Denominators of 40
Denominators of 8
Fractions as decimals (thousandths)
Unit fractions as decimalsFractions and mixed numbers as repeating decimals
Decimals as Fractions and Mixed Numbers
Decimals as unit fractions in their simplest form
Decimals as fractions in their simplest form
Decimals as fractions or mixed numbers
Repeating decimals as fractions or mixed numbers
Add and Subtract Fractions to make Decimals
Add fractions to make decimals
Add fractions to make decimals (2)
Add fractions to make decimals (3)Add mixed numbers to make decimalsAdd mixed numbers to make decimals (2)Add mixed numbers to make decimals (3)
Add and subtract mixed numbers to make decimals

| Standard(s) | Pages |
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| 5.NBT.3 | $1-2$ |
| 5.NBT.3 | $3-4$ |
| 7.NS.2 | $5-6$ |
| 7.NS.2 | $7-8$ |
| 7.NS.2 | $9-10$ |
| 7.NS.2 | $11-12$ |
| 6.NS.6 | $13-14$ |
| 6.NS.6 | $15-16$ |
| 6.NS.6 | $17-18$ |
| 6.NS.6 | $19-20$ |

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5.NBT. $3 \quad 21$ - 22
5.NBT. $3 \quad 23-24$
6.NS. $6 \quad 25-26$
7.NS. $2 \quad 27-28$
5.NBT. $3 \quad 29-30$
7.NS. $2 \quad 31-32$
7.NS. 2 33-34
7.NS. 2 35-36
7.NS. $2 \quad 37-38$
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| 7.NS.2 | $43-44$ |
| 7.NS.2 | $45-46$ |
| 7.NS.2 | $47-48$ |


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| 6.NS.3 | $51-52$ |
| 6.NS.3 | $53-54$ |
| 6.NS.3 | $55-56$ |
| 6.NS.3 | $57-58$ |
| 6.NS.3 | $59-60$ |
| 6.NS.3 | $61-62$ |

Multiply and Divide Fractions by FractionsMultiply decimal fractions (hundredths)Multiply decimal fractions (hundredths and thousandths)Fractions divided by fractionsFractions divided by mixed numbers
Multiply and Divide DecimalsMultiply single-digit numbers by decimalsMultiply decimals by multiples of 10Multiply decimals by multiples of 100Multiply decimals by multiples of 10 and 100
Estimate the productDivide decimals by decimals (tenths)Divide decimals by decimals (hundredths)
Estimate the quotient
Ratios
RatiosRatios (2)
Equivalent ratios
Equivalent ratios (2)
Simplify ratiosReciprocals
Fractions as Percentages
Hundredths, tenths, and halves
Denominators that are factors of 100
Denominators that are multiples of 100 (2)
Denominators that are factors of 100 and multiples of 100
Halves and fourths as a percent
Thirds as a percent
Sixths as a percent
Eighths as a percent
Thirds, sixths, and eighths as percentages
Decimal/Percent Connections
Decimals as percentsPercents as decimals
Percentage of a Quantity
Percentage of a quantityPercentage of a quantity (2)
Find the percent
Find the quantity

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| 6.NS.2 | $63-64$ |
| 6.NS.2 | $65-66$ |
| 6.NS.1 | $67-68$ |
| 6.NS.1 | $69-70$ |


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| 6.NS.3 | $73-74$ |
| 6.NS.3 | $75-76$ |
| 6.NS.3 | $77-78$ |
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| 6.NS.3 | $81-82$ |
| 6.NS.3 | $83-84$ |
| 6.NS.3 | $85-86$ |


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| 6.RP.1 | $89-90$ |
| 6.RP.1 | $91-92$ |
| 6.RP.1 | $93-94$ |
| 6.RP.1 | $95-96$ |
| 6.NS.1 | $97-98$ |


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| 7.RP.3 | $99-100$ |
| 7.RP.3 | $101-102$ |
| 7.RP.3 | $103-104$ |
| 7.RP.3 | $105-106$ |
| 7.EE.3 | $107-108$ |
| 7.EE.3 | $109-110$ |
| 7.EE.3 | $111-112$ |
| 7.EE.3 | $113-114$ |
| 7.EE.3 | $115-116$ |

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7.RP. 3

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7.RP. 3
$119-120$

## Standard(s) Pages

7.RP. $3 \quad 121$ - 122
7.RP. $3 \quad 123-124$
7.RP. $3 \quad 125-126$
7.RP. $3 \quad 127-128$

Find the quantity (2)
Find the quantity (3)
Find the quantity (4)
Find the quantity (5)

## Percentage Increase

Percent more than
Percent more than (2)
Percent more than (3)
Percent more than (4)
Percent more than (5)

## Percentage Decrease

Percent less than
Percent less than (2)
Percent less than (3)
Percent less than (4)
Percent less than (5)
Percent less than (6)

## Percentage Difference

Find the percent (more than)
Find the percent (less than)
Find the percent (more than or less than)

## Negative Numbers

The opposite of positive numbers
The opposite of an opposite
Absolute value
Negative numbers on a number line
Order negative numbers
Compare negative integers
Compare negative fractions
Compare negative fractions and mixed numbers
Compare negative mixed numbers and improper fractions
Compare negative decimals
Compare negative fractions and decimals

## Add and Subtract with Negative Numbers

Add negative numbers when the first addend is positive
Add negative numbers when the first addend is negative
Add negative numbers
Subtract negative numbers from positive numbers
Subtract negative numbers from negative numbers
Subtract negative numbers
7.RP. $3 \quad 129-130$
7.RP. $3 \quad 131-132$
7.RP. $3 \quad 133-134$
7.RP. $3 \quad 135-136$

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7.RP. $3 \quad 137$ - 138
7.RP. $3 \quad 139-140$
7.RP. $3 \quad 141-142$
7.RP. $3 \quad 143-144$
7.RP. $3 \quad 145-146$

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7.RP.3 147-148
7.RP. $3 \quad 149-150$
7.RP. $3 \quad 151-152$
7.RP.3 153-154
7.RP.3 155-156
7.RP.3 157-158

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| 7.RP.3 | $161-162$ |
| 7.RP.3 | $163-164$ |


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| 6.NS.5 | $165-166$ |
| 6.NS.6 | $167-168$ |
| 6.NS.7 | $169-170$ |
| 6.NS.6 | $171-172$ |
| 6.NS.6 | $173-174$ |
| 6.NS.7 | $175-176$ |
| 6.NS.7 | $177-178$ |
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| 6.NS.7 | $181-182$ |
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| 6.NS.7 | $185-186$ |


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| 7.NS.1 | $189-190$ |
| 7.NS.1 | $191-192$ |
| 7.NS.1 | $193-194$ |
| 7.NS.1 | $195-196$ |
| 7.NS.1 | $197-198$ |

Add and subtract negative numbers
Additive inverses
Inverses and the Identity Property of Zero

## Multiply and Divide with Negative Numbers

Multiply negative numbers by negative numbers
Multiply by negative numbers
Divide negative numbers by negative numbers
Divide positive and negative numbers
Multiply 3 or more numbers with negatives
Multiply and divide 3 or more numbers with negatives
Multiplicative inverses
Multiplicative inverses (2)
Multiply and divide negative numbers with fractions
Multiply and divide negative numbers with decimals

## Order of Operations

Order of operations without parentheses
Order of operations with parentheses
Order of operations with exponents
Order of operations with exponents and parentheses
Mixed order of operations

## Divisibility Rules

Divisibility rules for 2 and 5
Divisibility rules for 3
Divisibility rules for 4
Divisibility rules for 6
Divisibility rules for 7
Divisibility rules for 8
Divisibility rules for 9

## Other Rational Number Topics

Even and odd sums
The connection of addition and subtraction
True and false number sentences
Estimate the quotient (2)
Least Common Multiple
Greatest Common Factor
Rational and irrational numbers
7.NS. $1 \quad 199-200$
7.EE. $1 \quad 201-202$
7.EE. $1 \quad 203-204$

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| 7.NS.2 | $207-208$ |
| 7.NS.2 | $209-210$ |
| 7.NS.2 | $211-212$ |
| 7.NS.2 | $213-214$ |
| 7.NS.2 | $215-216$ |
| 7.EE.1 | $217-218$ |
| 7.EE.1 | $219-220$ |
| 7.NS.2 | $221-222$ |
| 7.NS.2 | $223-224$ |


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| 6.EE. 3 | $225-226$ |
| 6.EE. 3 | $227-228$ |
| 6.EE.3 | $229-230$ |
| 6.EE.3 | $231-232$ |
| 6.EE.3 | $233-234$ |


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| 6.NS.4 | $235-236$ |
| 6.NS.4 | $237-238$ |
| 6.NS.4 | $239-240$ |
| 6.NS.4 | $241-242$ |
| 6.NS.4 | $243-244$ |
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| 6.NS.4 | $247-248$ |

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6.EE. 3 251-252
6.EE. $5 \quad 253-254$
6.NS. $3 \quad 255-256$
6.NS. $4 \quad 257-258$
6.NS. 4

259-260
8.NS. $1 \quad 261$ - 262

