

*Can be used on tests except for checkpoint and TAKS*

	<b>Add</b>	<b>Subtract</b>	<b>Multiply</b>	<b>Divide</b>
<p>Fraction</p> <p>Example: <math>\frac{3}{4}</math> and <math>\frac{2}{3}</math></p>	<ul style="list-style-type: none"> <li>- Convert all fractions to LCD</li> <li>- Add numerators</li> <li>- Reduce Fraction</li> <li>- Change to Proper Fraction</li> </ul> $\frac{9}{12} + \frac{8}{12} = \frac{17}{12} = 1\frac{5}{12}$	<ul style="list-style-type: none"> <li>- Convert all fractions to LCD</li> <li>- Subtract numerators</li> <li>- Reduce Fraction</li> <li>- Change to Proper Fraction</li> </ul> $\frac{9}{12} - \frac{8}{12} = \frac{1}{12}$	<ul style="list-style-type: none"> <li>- Multiply numerators</li> <li>- Multiply denominators</li> <li>- Reduce Fraction</li> <li>- Change to Proper Fraction</li> </ul> $\frac{3}{4} \cdot \frac{2}{3} = \frac{6}{12} = \frac{1}{2}$	<ul style="list-style-type: none"> <li>- Reciprocal of Divisor</li> <li>- Multiply numerators</li> <li>- Multiply denominators</li> <li>- Reduce Fraction</li> <li>- Change to Proper Fraction</li> </ul> $\frac{3}{4} \div \frac{2}{3} = \frac{3}{4} \cdot \frac{3}{2} = \frac{9}{8} = 1\frac{1}{8}$
<p>Mixed Number</p> <p>Example: <math>5\frac{1}{2}</math> and <math>3\frac{2}{3}</math></p>	<ul style="list-style-type: none"> <li>- Convert all fractions to LCD</li> <li>- Add numerators</li> <li>- Add whole numbers</li> <li>- Reduce Fraction</li> <li>- Change to Proper Fraction</li> </ul> $5\frac{3}{6} + 3\frac{4}{6} = 8\frac{7}{6} = 9\frac{1}{6}$	<ul style="list-style-type: none"> <li>- Convert all fractions to LCD</li> <li>- Subtract numerators (Borrow if necessary)</li> <li>- Subtract whole numbers</li> <li>- Reduce Fraction</li> <li>- Change to Proper Fraction</li> </ul> $5\frac{3}{6} - 3\frac{4}{6} = 4\frac{9}{6} - 3\frac{4}{6} = 1\frac{5}{6}$	<ul style="list-style-type: none"> <li>- Convert to improper fraction</li> <li>- Multiply numerators</li> <li>- Multiply denominators</li> <li>- Reduce Fraction</li> <li>- Change to Proper Fraction</li> </ul> $5\frac{1}{2} \cdot 3\frac{3}{4} = \frac{11}{2} \cdot \frac{15}{4} = \frac{165}{8} = 20\frac{5}{8}$	<ul style="list-style-type: none"> <li>- Convert to improper fraction</li> <li>- Reciprocal of Divisor</li> <li>- Multiply numerators</li> <li>- Multiply denominators</li> <li>- Reduce Fraction</li> <li>- Change to Proper Fraction</li> </ul> $\frac{11}{2} \div \frac{15}{4} = \frac{11}{2} \cdot \frac{4}{15} = \frac{44}{30} = 1\frac{7}{15}$
<p>Decimal</p> <p>Example: <math>3.5</math> and <math>2.75</math></p>	<ul style="list-style-type: none"> <li>- Line up the Decimals</li> <li>- Fill gaps with zeros</li> <li>- Add</li> </ul> $\begin{array}{r} 2.10 \\ 12.03 \\ \hline 14.13 \end{array}$	<ul style="list-style-type: none"> <li>- Line up the Decimals</li> <li>- Fill gaps with zeros</li> <li>- Subtract</li> </ul> $\begin{array}{r} 5.10 \\ \underline{2.45} \\ 2.65 \end{array}$	<ul style="list-style-type: none"> <li>- Multiply two numbers disregarding decimals</li> <li>- Count digits to right of decimal</li> <li>- Locate decimal to the left the total number of digits counted</li> </ul> $\begin{array}{r} 1.23 \\ \underline{2.1} \\ 123 \\ \underline{2460} \\ 2.583 \end{array}$	<ul style="list-style-type: none"> <li>- Use long division</li> <li>- Move the decimal right of the divisor to the end</li> <li>- Move the decimal the same number of places in the dividend</li> <li>- Do long division with the decimals lined-up</li> </ul> $1.2 \overline{) .240} = 12 \overline{) 2.40}$

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	Add	Subtract	Multiply	Divide
Integer <sup>1</sup> Same signs	- Add the numbers together - Give the answer the same sign	<i>Change to addition problem</i> - Change the subtraction sign to addition - Change the sign of the second number to the opposite sign - Follow addition rules	Positive  $-4 \cdot -7 = 28$	Positive  $-4 \div -7 = 4/7$
Example: -4 and -7	$-4 + -7 = -11$			
Integers Different signs	- Ignore the signs and find the difference - Give the answer the sign of the larger number (absolute value)	$-4 - (-7) \rightarrow -4 + 7$  $5 - (-6) \rightarrow 5 + 6$	Negative  $5 \cdot -6 = -30$	Negative  $5 \div -6 = -5/6$
Example: 5, -6	$5 + -6 = ?$ $6 - 5 = 1 \rightarrow -1$			
Symbols	+	-	*, x, •, (), 3x	$\div, \frac{x}{2}, \frac{x}{2}, 2\overline{)x}$
Names	<b>Sum</b>	<b>Difference</b>	<b>Product</b>	<b>Quotient</b>

Absolute value of a number is always positive. Absolute value is treated like parentheses in order of operation.

Examples:  $|-9| = 9; |9| = 9; -|9| = -9$

Order of operation<sup>2</sup>

1. Parentheses
2. Exponents
3. Multiply and divide (from left to right)
4. Add and subtract (from left to right)

<sup>1</sup> Rules can be used for fractions and decimals

<sup>2</sup> Some remember this by: Please Excuse My Dear Aunt Sally.

