Mat 011 Day 1 Summer 2005

Short Placement Test
Index Cards:
  Name
  Address
  Phone Number
  Email Address
  Why taking this course
  Something Unique about you
Attendance Roll Sheet
Class Policy Sheet
Assignments and Course Outline
Software/Video Guide

Code of Ethics due: 06/06/05

Homework Topics 1 and 2
Pages 13-15
Web page:  
http://faculty.mc3.edu/rhofman/first.htm

Electronic Resources:  
http://www.mc3.edu/aa/career/MATHSCI/mat011/mat011.htm

Flash Modules:  
http://faculty.mc3.edu/rhofman/First.htm#flash
Opening Day Program

Fall openings in Radiography

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Personal Enrichment and Computer Programs this Fall
In Blue Bell and Pottstown

College to Host Annual Women's Conference
September 18

Register now for Fall!
Many new courses and programs!
Your username is: << first letter first name – full last name – last 4 digits of Datatel ID >>
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For Example:
Student Name: John Smith  Datatel ID: 1234567
ID: jsmith4567
Password: 1234567
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Use your network id & network password to login.

<table>
<thead>
<tr>
<th>Login Examples</th>
<th>ID</th>
<th>Password</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>jsmith4567</td>
<td>0123456</td>
</tr>
<tr>
<td>Faculty/Staff</td>
<td>jsmith</td>
<td>abcdef</td>
</tr>
</tbody>
</table>

Login to my.mc3.edu to read and send email, access course materials, and use other online services.

Need Help? Contact the Helpdesk:

<table>
<thead>
<tr>
<th>Email</th>
<th><a href="mailto:helpdesk@mc3.edu">helpdesk@mc3.edu</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone</td>
<td>215-641-6495</td>
</tr>
<tr>
<td>Hours: M - F</td>
<td>8:00 a.m. - 11:00 p.m.</td>
</tr>
<tr>
<td>Sa</td>
<td>9:00 a.m. - 12:00 noon</td>
</tr>
</tbody>
</table>
BlackBoard:
http://courses.mc3.edu

Your username is:...<<first-letter-first-name--full-last:name--last-4-digits-of-Datatel-ID>>
Password is:...<<Datatel-ID>>
For Example:
Student Name:...John-Smith...Datatel-ID:...1234567
ID:...jsmith4567
Password:...1234567
Homework: Topics 1, 2, 3
Pages 13-15, 16-17
Mathematics

Natural Numbers
Whole Numbers
Equals, Not Equal, Less than, Greater than,
opposite of, absolute value
Signed Number Handout
Rules for Addition and Subtraction of Signed numbers

Definition of Subtraction
Multiplication Signed Numbers
Zero as a Factor
Quotient
Zero as a divisor
\{1, 2, 3, \ldots\} \quad \text{Counting numbers}

\{0, 1, 2, 3, \ldots\} \quad \text{Natural numbers}

\{\ldots, -3, -2, -1, 0, 1, 2, 3, \ldots\} \quad \text{Integers}

0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, \ldots

Rational numbers
Rational

-3 -2 -1 0 1 2 3

Irrational

\[ \sqrt{2}, \pi, \frac{\pi}{2}, \sqrt{3}, e \]
Unit 1 Lecture 1
Signed Numbers

- Real Number System
- Symbols of equality, inequality, less than, greater than
- Unary operations: opposite of; absolute value
- Rules of Addition and Subtraction for Signed numbers
- Mathematical Statement into Symbols
Objectives

- To identify Real numbers
- To learn the rules for addition and subtraction of signed numbers
- To learn how to go from a mathematical statements to symbols and solve
Real Numbers

- Two subsets: Rationals and Irrationals
- Rationals contain Integers as a subset
- Integers contain Whole Numbers as a subset
- Whole numbers contain Counting Numbers or Natural Numbers as a subset.
Examples

- Counting Numbers or Natural Numbers \{1, 2, 3, \ldots\}
- Whole Numbers \{0, 1, 2, 3 \ldots\}
- Integers \{ \ldots -3, -2, -1, 0, 1, 2, 3, \ldots\}
- Rational Numbers \{-8, -1.5, 7/4, 0, 6, \text{ etc.}\}
- Irrational Numbers \{\pi, \sqrt{2}, -\sqrt{7}, \text{ etc.}\}
Equality

\[ 2 + 3 = 5 \]

\[ 2 + 3 \neq 6 \]

\[ 2 + 3 < 6 \text{ is less} \]

\[ 3 + 4 > 6 \]
Inequality
Unary Operations

**Opposite**

**Absolute Value**

\[-6 \quad 6\]

**Binary**

\[-5 \quad -2 \quad -1 \quad 0 \quad 5\]
Mathematical Statements into Symbols

1. I have $60 and I owe you $90. What is my net worth?

\[ +60 - 90 = -30 \]
2. I am in debt for $50 and you give me $10. What is my net worth?

\[-50 + 10 = -40\]
3. I am in debt for $30 and you give me $40. What is my net worth?

\[-30 + 40 = 10\]
4. I am in debt for $20 and I owe you $50. What is my net worth?

$$-20 - 50 = -70$$

$$(-20) + (-50) = -70$$
\[ +5 + 2 = +7 \]
\[ +5 - 2 = +3 \]
\[ -5 + 2 = -3 \]
\[ -5 - 2 = -7 \]
Addition of Signed Numbers

- **Like Signs:**
  - Ignore the signs
  - Add
  - Take the common sign

\[-5 - 2 = -7 \quad (-5) + (-2) = -7\]
\[+5 + 2 = +7 \quad (+5) + (+2) = +7\]
Take the common sign

- Unlike Signs:
  - Ignore the signs
  - Subtract
  - Look to see what the sign was of the larger unsigned number
  - Take that sign

\[-7 + 2 = -5\]
\[+7 - 2 = +5\]
Addition of Signed Numbers

- **Like Signs:**
  - Ignore the signs
  - Add
  - Take the common sign

- **Unlike Signs:**
  - Ignore the signs
  - Subtract
  - Look to see what the sign was of the larger unsigned number
  - Take that sign
Like Signs:

\[ +5 + 3 = 8 \]

\[ -5 - 3 = -8 \]
• Unlike Signs:
  \[ +5 - 3 = 2 \]
  \[ -5 + 3 = -2 \]
• Like Signs:
  
- $+5 + 3 = +8$
- $-5 - 3 = -8$

• Unlike Signs:

- $+5 - 3 = +2$
- $-5 + 3 = -2$
Perform the operation:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-7 + 5</td>
<td>-2</td>
</tr>
<tr>
<td>6 - 10</td>
<td>-4</td>
</tr>
<tr>
<td>2 - 11</td>
<td>-9</td>
</tr>
<tr>
<td>-8 - 15</td>
<td>-23</td>
</tr>
<tr>
<td>-6 + 10</td>
<td>+4</td>
</tr>
<tr>
<td>1/4 - 5/6</td>
<td>-2</td>
</tr>
</tbody>
</table>

\[
\frac{1}{4} \cdot \frac{3}{3} - \frac{5}{6} \cdot \frac{2}{2} = \frac{3 - 10}{12} = \frac{-7}{12}
\]
\[
\frac{1}{2} \cdot \frac{3}{3} = \frac{1}{2} \cdot 1 = \frac{3}{6}
\]

\[
\frac{1}{3} \cdot \frac{2}{2} = \frac{2}{6}
\]

\[
\frac{1}{2} + \frac{1}{3} = \frac{3}{6} + \frac{2}{6} = \frac{5}{6}
\]
Subtraction Key

- Key, binary key,

7th row, 5th column

-6 - 3 = 9

binary

(+/-) (-)
(-) key, unary operation

9\(^{th}\) row, 4\(^{th}\) column
Use of the calculator to evaluate $- 8.6 + 11.4$

To add signed numbers use the opposite \((-\) key, \(9^{\text{th}}\) row, \(4^{\text{th}}\) column.

\(- 8.6 + 11.4\)

is keyed in as\((-), 8.6, +, 11.4, \text{ ENTER}\)

\(2.8\)
Use the calculator to evaluate: \(-16.85 - 28.42\)

To add signed numbers use the opposite key \((-)\) and binary subtraction key \(-\)

\(-16.85 - 28.42\)

is keyed in as
\((-), 16.85, -, 28.42, \text{ ENTER}\)

\(-45.27\)
Mathematical Statements into Symbols

1. I will lose $5 a day for the next three days. How much money will I lose?

\[ (-5) \cdot (3) = -15 \]
2. I lost $6 a day for the previous four days. How much more money did I have four days ago?

\((-6) \cdot (-4) = 24\)
\[(+2)(+3) = +6\]
\[(+2)(-3) = (-3)+(-3) = -6\]
\[(-2)(+3) = (-2)+(-2)+(-2) = -6\]
\[(-2)(-3) = +6\]

Like: 
\[ (+)(+) = + \]
\[ (-)(-) = + \]

Unlike:
\[ (+)(-) = - \]
\[ (-)(+) = - \]
Multiplication of Two Signed Numbers

- Like Signs:
  - \((+)(+) = +\)
  - \((-)(-) = +\)

- Opposite Signs:
  - \((+)(-) = -\)
  - \((-)(+) = -\)
Multiplication of Two Signed Numbers

- Like Signs: Positive
  - $(+)(+) = +$
  - $(-)(-) = +$

- Unlike Signs: Negative
  - $(+)(-) = -$
  - $(-)(+) = -$
Perform the operation:

<table>
<thead>
<tr>
<th>Expression</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>((-6)(3))</td>
<td>-18</td>
</tr>
<tr>
<td>((-7)(-2))</td>
<td>14</td>
</tr>
<tr>
<td>((8)(-4))</td>
<td>-32</td>
</tr>
<tr>
<td>(18)</td>
<td>-6</td>
</tr>
<tr>
<td>(-3)</td>
<td></td>
</tr>
<tr>
<td>(-21)</td>
<td>-3</td>
</tr>
<tr>
<td>(-7)</td>
<td></td>
</tr>
<tr>
<td>(-48)</td>
<td>8</td>
</tr>
<tr>
<td>(-6)</td>
<td></td>
</tr>
</tbody>
</table>
Use of the calculator to evaluate \((-6.42)(-7.81)\).

To multiply signed numbers use the opposite (-) key, and multiplication (x) key.

\((-6.42)(-7.81)\) is keyed in as (-), 6.42, x, (-), 7.81, ENTER.

50.1402
Use of the calculator to evaluate \((- 8.42)/(3.15)\)

To divide signed numbers use the opposite \((-)\) key, and division \(\div\) key

\((- 8.42)/(3.15)\)
is keyed in as
\((-), 8.42, \div, 3.15, \text{ ENTER}\)

\(-2.673015873\)
Zero As a Factor

Zero multiplied by any number is still zero.

\[ 0 \times 6 = 0 \quad \text{or} \quad 6 \times 0 = 0 \]
\[
\frac{0}{6} = 0 \\
6 \cdot 0 = 0 \\
\frac{6}{0} = \text{undefined} \\
0 \cdot ? = 6 \\
\frac{0}{0} = \text{indeterminate} \\
0 \cdot 10 = 0 \\
0 \cdot -10 = 0
\]
Division is checked by Multiplication

How do we check that 6 divided by 2 is 3?
Zero divided by any nonzero number is zero.
Zero As a Divisor

Zero divided by any nonzero number is zero.

\[
\frac{0}{6} = 0
\]

Zero divided by zero is indeterminate.

\[
\frac{0}{0} = \text{indeterminate}
\]

A number divided by zero is undefined.

\[
\frac{6}{0} = \text{undefined}
\]
Perform the operation:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Use the calculator to evaluate \((-10.81)/0\)

To divide signed numbers use the opposite \((-)\) key, and division \(\div\) key

\((-10.81)/(0)\)

is keyed in as 
\((-), 10.81, \div, 0, \text{ENTER}\)
<table>
<thead>
<tr>
<th>Please</th>
<th>Parentheses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excuse</td>
<td>Exponents</td>
</tr>
<tr>
<td>My Dear</td>
<td>Multiply, Divide left to right</td>
</tr>
<tr>
<td>Aunt Sally</td>
<td>Add, Subtract left to right</td>
</tr>
</tbody>
</table>
Flash Modules:
http://faculty.mc3.edu/rhofman/First.htm#flash

http://faculty.mc3.edu/rhofman/flash03/oct1/menuorder.html
Order of Operation

7(8 - 10) =
Order of Operation

\[
\frac{6(-3) + (5)(-2)}{3 - 10} =
\]
Explanation of Subtraction Vs Opposite Of: ¶
On the inexpensive calculators of yesteryear, there were 4 function keys: addition, subtraction, multiplication, division (+ - × ÷). These are BINARY keys because they need TWO numbers to operate on. ¶
If you push 6 and then key 6-9 will happen because the calculator is waiting for the 2nd number to subtract (binary operation). ¶
¶
There was also a Plus/Minus key (±). This is a unary key. It only needs one number to operate on. ¶
If you push 6 then the ± key, the number will become negative. 6, that is, −6.
**Addition and Multiplication of Signed Numbers**

Motivation: There are only two primary operations, multiplication and addition. Division is multiplying by the inverse of the divisor; subtraction is adding the opposite of the subtrahend. Hence, we need to learn only the rules for multiplication and addition of signed numbers.

Addition of Signed Numbers tells us to look at the numbers and:

1. Decide whether the numbers have the same signs or unlike signs.
2. Like signs:
   a. Ignore the signs
   b. Add the two numbers together
   c. Take the common sign as the sign of the answer
   d. \(+2 + 5 = +7\)
   e. \(-2 - 5 = -7\)
3. Unlike signs:
   a. Ignore the signs
   b. Find the difference between the two numbers, how far apart are they?
   c. Determine which number without its sign is bigger
   d. Go back to the original problem determine what sign it originally had, make that the sign of the answer.
   e. \(+2 - 5 = -3\)
   f. \(-2 + 5 = +3\)
**Multiplication of Signed Numbers:**

1. Decide whether the numbers have the same signs or unlike signs.

2. Like signs: $(-)(-)=+; (+)(+) = +$

3. Unlike signs: $(-)(+)=--; (+)(-)=-$

**Informal Reasoning for Two Negatives:**

False $=$ Not·True

$\text{not} \cdot \text{False} = \cdot \text{not} \cdot \text{not} \cdot \text{True} = \text{True}$

Paying back a debt of 6 dollars means the person now has the 6 dollars.

$-(-6) = +6$
Some say that Algebra is a language because one must translate from words into symbols.
The following Table shows some common English phrases and the corresponding algebraic or arithmetic expressions.
<table>
<thead>
<tr>
<th>Phrase</th>
<th>Example</th>
<th>Algebraic Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>The sum of</td>
<td>The sum of 3 and 2</td>
<td></td>
</tr>
<tr>
<td>Added to</td>
<td>3 added to 2</td>
<td></td>
</tr>
<tr>
<td>More than</td>
<td>3 more than 2</td>
<td></td>
</tr>
<tr>
<td>Phrase</td>
<td>Example</td>
<td>Algebraic Expression</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Difference of</td>
<td>Difference of 3 and 7</td>
<td></td>
</tr>
<tr>
<td>Subtracted from</td>
<td>7 subtracted from 3</td>
<td></td>
</tr>
<tr>
<td>Less than</td>
<td>7 less than 3</td>
<td></td>
</tr>
<tr>
<td>Phrase</td>
<td>Example</td>
<td>Algebraic Expression</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Product of</td>
<td>Product of 3 and 2</td>
<td></td>
</tr>
<tr>
<td>Multiplied by</td>
<td>3 multiplied by 2</td>
<td></td>
</tr>
<tr>
<td>Times the quantity</td>
<td>3 times the quantity of 7 plus 2</td>
<td></td>
</tr>
</tbody>
</table>
Variable:
Variable:
A letter that is used to represent a quantity or a number

Examples: x, y, z, a, b, c
Let $p = \text{amount of profit}$
Let $c = \text{number of cones}$
X added to X visually is 2X
X added to Y is X + Y

X + Y can not be combined
$X \times X$ is $X^2$
$X \times X$ is $X^2$
X times X is \( X^2 \)

Note that the shape is a square – the name fits the object.
$X \times X$ is $X^2$.

Note that the shape is a square – the name fits the object.
Flash Modules:
http://faculty.mc3.edu/rhofman/First.htm#flash

http://faculty.mc3.edu/rhofman/flash03/oct8/menuxtimestx.html
<table>
<thead>
<tr>
<th><strong>Vocabulary</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Algebraic Expression:</strong> Collection of numbers, variables, operation symbols and grouping symbols.</td>
</tr>
<tr>
<td><strong>Algebraic Equation:</strong> Mathematical statement that 2 expressions have equal value. An equation is easy to spot because it has an <strong>equal</strong> symbol.</td>
</tr>
</tbody>
</table>
Algebraic Expression: \( axy + bz \)

Algebraic Equation: \( axy + bz = 24 \)
Vocabulary

Variable: A letter that is used to represent a quantity or a number

Terms: Parts of an algebraic expression connected by + or - signs
<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Like Terms</td>
<td>Terms where the variables and their exponents are the same</td>
</tr>
<tr>
<td>Factors</td>
<td>Parts of an algebraic expression that are multiplied</td>
</tr>
<tr>
<td>Terms</td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>The terms in the equation $2xy + 3z = w$ are:</td>
<td></td>
</tr>
<tr>
<td>$2xy$</td>
<td>$3z$</td>
</tr>
<tr>
<td>Factors</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>Factors in the <strong>term</strong> $2xy$ are:</td>
<td></td>
</tr>
<tr>
<td>$2$ $x$ $y$</td>
<td></td>
</tr>
<tr>
<td>Factors in the <strong>term</strong> $3z$ are:</td>
<td></td>
</tr>
<tr>
<td>$3$ $z$</td>
<td></td>
</tr>
</tbody>
</table>
Combine Like Terms:

$$3x + 7 + 2x + 5$$

$$5x + 12$$
Distributive Property:

\[ 2(3x + 5) \]

\[ 6x + 10 \]
The manager of an Ice Cream Shop pays $800 per month for fixed expenses such as rent, light, and wages. Ice cream cones are sold for $1.85 each, of which $1.40 goes for ice cream, cone and napkin.

Calculate the monthly profits, when they have sold the following number of ice cream cones per month?
<table>
<thead>
<tr>
<th>Cones</th>
<th>Calculations</th>
<th>Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,000</td>
<td>.45(10000)-800</td>
<td>$3,700</td>
</tr>
<tr>
<td>15,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Equation for Profit for Ice Cream Cones

Let $c = \#\text{ of cones}$

Let $P = \text{amount of profit}$
Equation for Profit for Ice Cream Cones

Let $c =$ # of cones

Let $P =$ amount of profit

$P = .45c - 800$
Equation for Profit for Ice Cream Cones

Suppose the expenses increase to $875 a month and they charge $2.10 a cone ($1.40 still goes for ice cream, cone and napkin). What will be the new equation for their monthly profits?
Wrecker charges $21.95 per day plus .41 a mile.

Complete the table.

<table>
<thead>
<tr>
<th>MILES</th>
<th>CALCULATION</th>
<th>COST ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>m</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Another rental company, Limo, charges a flat rate of $39.95 a day with unlimited miles. How many miles would you have to drive to make Limo cost the same as Wrecker?
<table>
<thead>
<tr>
<th>MILES</th>
<th>CALCULATION</th>
<th>Wrecker COST ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>.41 ( 10 ) + 21.95</td>
<td>26.05</td>
</tr>
<tr>
<td>20</td>
<td>.41 ( 20 ) + 21.95</td>
<td>30.15</td>
</tr>
<tr>
<td>30</td>
<td>.41 ( 30 ) + 21.95</td>
<td>34.25</td>
</tr>
<tr>
<td>40</td>
<td>.41 ( 40 ) + 21.95</td>
<td>38.35</td>
</tr>
<tr>
<td>44</td>
<td>.41 ( 44 ) + 21.95</td>
<td>39.99</td>
</tr>
<tr>
<td>m</td>
<td>.41 ( m ) + 21.95</td>
<td>C</td>
</tr>
</tbody>
</table>
Equation for Rental Car

A third company, Ertz, charges $18.95 a day and .50 a mile. What is the formula that calculates the cost of renting a car from Ertz for a day?
A third company, Ertz, charges $18.95 a day and .50 a mile. What is the formula that calculates the cost of renting a car from Ertz for a day? How many miles would you have to drive to make Ertz cost the same as Wrecker?

Wrecker charges $21.95 per day plus .41 a mile.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>A symbol that is used to represent a number</td>
</tr>
<tr>
<td>Terms</td>
<td>Parts of an algebraic expression connected by + or - signs</td>
</tr>
<tr>
<td>Like Terms</td>
<td>Terms where the variables and their exponents are the same</td>
</tr>
<tr>
<td>Factors</td>
<td>Parts of an algebraic expression that are multiplied</td>
</tr>
</tbody>
</table>
Combine Like Terms:

\[3x + 7 + 2x + 5\]

\[5x\]

\[12\]

\[5x + 12\]
Combine Like Terms:

\[-8x^2 + 2x - 8 - 6x^2 + 10x + 2\]

\[-14x^2 + 12x - 6\]
### Algebraic Expressions

<table>
<thead>
<tr>
<th>Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>$x + 3xy + 2x$</td>
</tr>
<tr>
<td>$4x^2 + 7x - 2x^2 + 8$</td>
</tr>
<tr>
<td>$-16ab$</td>
</tr>
<tr>
<td>$(x+2)+7x$</td>
</tr>
</tbody>
</table>
Distributive Property:

\[ 2(3x + 5) \]

\[ 6x + 10 \]
### Distributive Property

<table>
<thead>
<tr>
<th>Expression</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>3(x + 2)</td>
<td></td>
</tr>
<tr>
<td>5(x - 3)</td>
<td></td>
</tr>
<tr>
<td>-7(2x + 3)</td>
<td></td>
</tr>
<tr>
<td>4(x - 2)</td>
<td></td>
</tr>
</tbody>
</table>
## Algebraic Expressions

<table>
<thead>
<tr>
<th>Expression</th>
<th>Simplified</th>
</tr>
</thead>
<tbody>
<tr>
<td>$3x + 7 + 2x + 5$</td>
<td></td>
</tr>
<tr>
<td>$6x - 8 - 11x + 2$</td>
<td></td>
</tr>
<tr>
<td>$\frac{1}{2}x - \frac{3}{4}x + \frac{7}{5}$</td>
<td></td>
</tr>
</tbody>
</table>
Expressions: Distributive Property

<table>
<thead>
<tr>
<th>Expression</th>
<th>Simplified</th>
</tr>
</thead>
<tbody>
<tr>
<td>2(3x + 5)</td>
<td></td>
</tr>
<tr>
<td>– (x – 8)</td>
<td></td>
</tr>
<tr>
<td>– 6(2x + 4)</td>
<td></td>
</tr>
</tbody>
</table>
### Algebraic Expressions

<table>
<thead>
<tr>
<th>Expression</th>
<th>Simplified</th>
</tr>
</thead>
<tbody>
<tr>
<td>$4x + 2(3x + 8)$</td>
<td></td>
</tr>
<tr>
<td>$6x - (5x + 7)$</td>
<td></td>
</tr>
<tr>
<td>$9 - 3(4x + 6)$</td>
<td></td>
</tr>
</tbody>
</table>