Math 135: Section 3.1

## Translating English Phrases into Algebraic Expressions:

| Add | Subtract | Multiply | Divide | Equal To |
| :--- | :--- | :--- | :--- | :--- |
| - increased by | - less than | - multiplied by | - divided | - is/was/has |
| - more than | - decreased by | - of | - ratio of | - is the same as |
| - greater than | - smaller than | - product of | - quotient of | - equals |
| - added to | - fewer than | - times |  | - costs <br> - sum of <br> - shorter than <br> - difference of |
|  |  |  |  |  |

Let $x$ equal a number. Write each English phrase as an algebraic expression.

1. Twelve more than a number.

$$
x+12
$$

2. Eight less than a number.

$$
x-8
$$

3. Five times a number.

$$
5 x
$$

4. Five times the sum of a number and three.

$$
5(x+3)
$$

5. Three more than the product of five and a number.

$$
3+5 x \quad \stackrel{\text { or }}{=} 5 x+3
$$

6. Six less than one-third of the sum of a number and four.

$$
\frac{1}{3}(x+4)-6
$$

Now define a variable using a "let" statement and then write each quantity using the defined variable.

1. The sandwich cost $\$ 2$ more than the muffin.

$$
\begin{array}{c|c}
\text { let } x=\cos t \text { of muffin } & \text { let } m=\text { cost of muffin } \\
x+2=\text { cost of } & m+2=\text { cost of sandwich }
\end{array}
$$

2. During the summer, Sarah read twice as many books as Ted. Peter read five more books than Ted.

$$
\begin{aligned}
\text { let } x & =\text { number of books that Ted read } \\
2 x & = \\
& \text { Search " } \\
x+5= & \text { Peter }
\end{aligned}
$$

3. The first angle of a triangle is 20 degrees more than the third angle. The second angle is double the third angle.

$$
\begin{aligned}
\text { let } y & =\text { the third angle } \\
y+20 & =\text { the first angle } \\
2 y & =\text { the second angle }
\end{aligned}
$$

