

Solving Symbol Equations

Assignment #1

Symbols: \$, ⊙, □, ⊞, ⊖, T, ⊞, ⊞, ⊙

Directions: Use only the seven **Algebra Power Tools** discussed in class. Identify each new line with the tool you used! You may combine the use of the same tool on one line if you like.

Caution: the same symbol cannot be on both sides of an equation!

Equations:

1. $\odot(T\boxtimes + \boxplus) - \odot = T + \boxplus\boxtimes$, for \boxtimes

$$\odot T\boxtimes + \odot\boxplus - \odot = T + \boxplus\boxtimes \quad \text{Dist } \odot$$

$$\odot T\boxtimes - \boxplus\boxtimes = T - \odot\boxplus + \odot \quad \text{A. J.}$$

$$\boxtimes(\odot T - \boxplus) = T - \odot\boxplus + \odot \quad \text{Dist}$$

$$\boxtimes = \frac{T - \odot\boxplus + \odot}{(\odot T - \boxplus)} \quad \text{m. J.}$$

2. $-\otimes\boxplus + \boxplus + \ominus\boxplus = \odot\boxplus - \boxplus\boxplus$, for \boxplus

$$-\otimes\boxplus + \ominus\boxplus - \odot\boxplus + \boxplus\boxplus = -\boxplus \quad \text{A. J.}$$

$$\boxplus(-\otimes + \ominus - \odot + \boxplus) = -\boxplus \quad \text{Dist}$$

$$\boxplus = \frac{-\boxplus}{(-\otimes + \ominus - \odot + \boxplus)} \quad \text{m. J.}$$

3. $\frac{\boxplus}{\boxplus}\ominus = T$, for \ominus LCD = $\frac{\boxplus}{1}$

$$\frac{\boxplus}{1} \left(\frac{\boxplus}{\boxplus} \ominus = T \right)$$

$$\boxplus\ominus = T\boxplus \quad \text{Dist LCD}$$

$$\ominus = \frac{T\boxplus}{\boxplus} \quad \text{m. J.}$$

4. $-\frac{\ominus}{\square} = \square$, for \ominus LCD = \square

$$\frac{\square}{1} \left(-\frac{\ominus}{\square} = \square \right)$$

$$-\ominus = \square \square \text{ or } \square^2 \text{ Dist LCD}$$

$$\ominus = \frac{\square \square}{-1} \text{ or } -\square^2 \text{ m.f.}$$

5. $-\frac{\ominus}{\oplus} \$ = -\frac{\ominus}{\square}$, for $\$$ LCD = $\frac{\oplus \square}{1}$

$$\frac{\oplus \square}{1} \left(-\frac{\ominus}{\oplus} \$ = -\frac{\ominus}{\square} \right)$$

$$-\square \ominus \$ = -\ominus \oplus \text{ Dist LCD}$$

$$\$ = \frac{-\ominus \oplus}{-\square \ominus} = \frac{\ominus \oplus}{\square \ominus} \text{ m.f.}$$

6. $-\square \ominus = \frac{\otimes(\ominus - \$)}{\boxtimes}$, for \ominus LCD = $\frac{\boxtimes}{1}$

$$\frac{\boxtimes}{1} \left(-\square \ominus = \frac{\otimes(\ominus - \$)}{\boxtimes} \right)$$

$$-\boxtimes \square \ominus = \otimes(\ominus - \$) \text{ Dist LCD}$$

$$-\boxtimes \square \ominus = \otimes \ominus - \otimes \$ \text{ Dist}$$

$$\otimes \$ = \otimes \ominus + \boxtimes \square \ominus \text{ A.f.}$$

$$\otimes \$ = (\otimes + \boxtimes \square) \ominus \text{ Dist}$$

$$\frac{\otimes \$}{(\otimes + \boxtimes \square)} = \ominus \text{ m.f.}$$