1) \[ \frac{5}{100} \times \frac{24}{100} = \frac{(24)(100)}{1000} \]
\[ 5 \times = 2400 \]
\[ x = \frac{2400}{5} \]
\[ x = 480 \]

2) \[ \frac{12}{107} \times \frac{x}{1926} = \frac{(12)(x)}{1926} \]
\[ 1926 = 3x \]
\[ 1926 \times \frac{3}{x} = x \]
\[ 57.5 = x \]

3) \[ \frac{x}{100} = \frac{(1500)}{100} \]
\[ x = \frac{9000}{100} \]
\[ x = 90 \]

4) \[ \frac{x}{7} = \frac{68}{34} \]
\[ x = \frac{4.86}{34} \]
\[ x = 0.14 \]

5) \[ \frac{43560}{137} \times \frac{245}{x} = \frac{(245)(137)}{43560} \]
\[ 43560 \times x = 33565 \]
\[ x = \frac{33565}{43560} \]
\[ x = -0.77 \]
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Quarts/A</th>
<th>Liquid Volume of Direct 4L into a 2.5 gallon tank (mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x Direct 4L</td>
<td>1.6</td>
<td>a) 94.625 mL</td>
</tr>
<tr>
<td>2x Direct 4L</td>
<td>3.2</td>
<td>b) 189.25 mL</td>
</tr>
<tr>
<td>4x Direct 4L</td>
<td>6.4</td>
<td>c) 378.5 mL</td>
</tr>
</tbody>
</table>

Justification of spraying rate: It is required by law that herbicide labels are followed. The lowest recommended rate is at 1.6 quarts per acre, so I will spray 1.6 Q/A.

a) First, we must figure out what 1.6 Q/A would be in mL/A.

\[
\frac{1.6 \text{ Q/A}}{X \text{ mL/A}} \times 3785 \text{ mL} = 6086 \text{ mL} = \frac{6086}{4} \text{ Q}
\]

There are 4 A in 1.6 Q/A. We must spray

\[
\frac{1.6 \text{ Q/A}}{X \text{ mL/A}} = \frac{1514 \text{ mL}}{X}
\]

at a rate of 1514 mL per Acre. 1514 mL/A is the required application rate, but our sprayer is calibrated to 40 gal/A, and only holds 2.5 gal a tank.

To figure out how much liquid Direct 4L goes into a 2.5 gallon tank in mL, we must...

\[
\begin{align*}
1514 \text{ mL} &= \frac{X \text{ mL}}{1514 \times 2.5} = X \times 40 \\
40 \text{ gal} &= 2.5 \text{ gal} \\
3785 &= 40X \\
3785 \div 40 &= X
\end{align*}
\]

A total of 94.625 mL of Direct 4L goes into each 2.5 gal tank that is calibrated at 40 gal/A. This would result in 1514 mL/A.
First we must figure out what 3.2 A/A would be in mL/A:

\[
3.2 \text{ gal} = \frac{44}{11} \text{ mL} \\
\frac{X}{378.5} = 4x \\
\frac{2412.8}{4} = x \\
\frac{3028 \text{ mL}}{x} = 189.25 \text{ mL} = x
\]

A total of 189.25 mL of Direx H4 goes into each 2.5 gal tank that is calibrated at 40 gal/A. This would result in 3028 mL/A.

To figure out how much liquid Direx H4 goes into the tank that holds 2.5 gallons and delivers at a rate of 40 gal/A, we must:

\[
\frac{6056 \text{ mL}}{x} = 15140 \\
\frac{x}{2424} = 40x \\
\frac{378.5 \text{ mL}}{x} = X
\]

A total of 378.5 mL of Direx H4 goes into each 2.5 gallon tank that is calibrated to spray at 40 gal/A. This would result in 6056 mL of Direx H4 applied to each Acre.
Part 2.3: First we must figure out how many acres the 2.5-gallon tank can deliver at 40 gal/ft².

\[ 40 \text{ gal} = 2.5 \text{ gal} = (40)(x) = (2.5)(1) \]

\[ 40x = 2.5 \]

\[ x = \frac{2.5}{40} = 0.0625 \text{ A} \]

Our tank at its current calibration will be able to cover 0.0625 acres.

To convert 0.0625 A to ft², we must:

\[ 0.0625 \text{ A} \times 43560 \text{ ft}^2 = 2722.5 \text{ ft}^2 \]

Our tank can cover 2722.5 ft² at its current calibration.

2722.5 ft² = (5)(x)

\[ x = \frac{2722.5}{5} = 544.5 \text{ ft}^2 \]

The total linear footage with a 2.5-gallon tank at 40 gal/ft² is 544.5 ft. You would be able to walk 544.5 ft before going empty.

Part 3.7: To figure out how much material in grams was added to the 1 ft x 1 ft sheet, we should first convert 80 lbs/ft² to A.

\[ 80 \text{ lbs} = 1120 \text{ lb} \]

\[ 1x = 454g \]

\[ (80)(454g) = (1)(x) \]

\[ 36320g = x \]

The applied rate is 36320 g per acre.
To figure out how much material was added to the 1 ft x 1 ft sheet at 36.320 g/ft², we must...

\[
36.320 \text{g} = x \\
43560 \text{ft}^2 = 1 \text{ft}^2 \\
36.320 = 43560 \times x \\
36.320 \div 43560 = x
\]

a) 0.008 g of material was added to the 1 x 1 sheet.

b) I applied 9 grams to the 3 ft x 3 ft sheet of plastic. To figure out my rate in lbs/acre, I must...

\[
9 \text{g} = x \\
(3 \times 43560) = (9) \text{lbs} \\
392040 = 9x \\
43560 \text{lbs/acre} = x
\]

I applied at a rate of 43560 g/acre.

c) To figure out how much 43560 g/acre is in lbs/acre, we must...

\[
43560 \text{g} = 45.95 \text{lbs} \\
(43560) \times (1) = (45.95) \times (x) \\
43560 \times 45.95 = x \\
43560 \div 45.95 = x
\]

I applied at a rate of 45.95 lbs/acre on the 3 ft x 3 ft sheet.

d) We must figure out how much phosphorus was applied in lbs. How much P is in 45.95 lbs of material if it’s 10.30-10? P is the middle #, so there is 30% P₂O₅.

\[
45.95 \text{lbs} = 100 \text{lbs} \\
30 \text{lbs} = P_2O_5 \\
(45.95) \times (30) = (100) \times (x) \\
28.785 = 100x \\
28.785 \div 100 = x
\]

I applied 28.78 lbs of P₂O₅ onto the 3 x 3 sheet.
We applied 28.79 pounds of material, and 43.58% of this material is phosphorus. To figure out how much phosphorus we applied in pounds, we must...

\[ \frac{28.79 \text{ lb}}{0.4358} = \frac{100 \%}{x} \]

\[ x = \frac{28.79}{0.4358} = 66.2 \text{ lb} \] unites!

\[ \frac{28.79 \times 0.4358}{100} = x \]

\[ x = 12.54 \text{ lb } P = x \]

I applied 12.54 pounds of phosphorus, or at least I would have if I applied phosphorus instead of sand.