1. Draw the control-flow graph for the following program. Don’t put statements in basic blocks; put every statement in its own node.

\[ \begin{align*}
  y &= x + 3; \\
  z &= y + w; \\
  w &= 42; \\
  \text{while } (z < a) \{ \\
    z &= z + y; \\
    a &= a - 1; \\
    x &= x + 1; \\
    \text{if } (z > 5) \{ \\
      y &= x + 3; \\
    \} \\
  \}
\end{align*} \]

2. Write down gen and kill sets for available expressions for each assignment statement in the above program.

3. Compute the set of available expressions at the out of each statement in the control-flow graph.