1] w = u \* u - u \* v + v \* v:

Code:  
# Function to generate the next temporary variable

def generate\_temp\_var(counter):

temp\_var = f"t{counter}"

counter += 1

return temp\_var, counter

def main():

# Input expression

expr = "w = u\*u - u\*v + v\*v"

# Temporary variable counter

counter = 1

# List to store intermediate results as tuples (temp\_var, operand1, operator, operand2)

temp\_vars = []

# Step 1: Handle 'u \* u'

temp1, counter = generate\_temp\_var(counter)

temp\_vars.append((temp1, "u", "\*", "u"))

print(f"{temp1} = u \* u")

# Step 2: Handle 'u \* v'

temp2, counter = generate\_temp\_var(counter)

temp\_vars.append((temp2, "u", "\*", "v"))

print(f"{temp2} = u \* v")

# Step 3: Handle 'v \* v'

temp3, counter = generate\_temp\_var(counter)

temp\_vars.append((temp3, "v", "\*", "v"))

print(f"{temp3} = v \* v")

# Step 4: Handle 'u\*u - u\*v'

temp4, counter = generate\_temp\_var(counter)

temp\_vars.append((temp4, temp1, "-", temp2))

print(f"{temp4} = {temp1} - {temp2}")

# Step 5: Handle '(u\*u - u\*v) + v\*v'

temp5, counter = generate\_temp\_var(counter)

temp\_vars.append((temp5, temp4, "+", temp3))

print(f"{temp5} = {temp4} + {temp3}")

# Step 6: Assign final result to 'w'

print(f"w = {temp5}")

if \_\_name\_\_ == "\_\_main\_\_":

main()