

Memory diagram worksheet - show the memory layout after main() has completed.

```
int main() {
    int x = 3;
    char s = 'h';
    vector<int> vec = {1, 3, 5};
    int y = x + 3;
    vector<int> vec2 = vec;
    vec[2]--;
    vec[0] -= x;
}
```

```
int main() {
    int x = 1, y = 2, z = 3;
    int w = f(x, y);
    int a = f(z, z);
    int q = f(5, a);
}
```

```
int f(int a, int b) {
    a += b;
    return a;
}
```

```
vector<int> g(vector<int> vec) {
    int temp = vec[0];
    vec[0] = vec[1];
    vec[1] = temp;
    return vec;
}
```

```
int main() {
    vector<int> a = {5, 4, 3};
    vector<int> b = g(a);
}
```

```
int main()
{
    int a = 1, b = 2, c = 3;
    int d = f(b, c);
}

int f(int& x, int y)
{
    x--;
    y += x;
    return x + y;
}
```

```
int main()
{
    int a = 1, b = 2, c = 3;
    g(b, c);
    h(b, a);
    h(c, c);
}

void g(int& x, int& y)
{
    x--;
    y += x;
}

void h(int& a, int& b)
{
    a++;
    b--;
}
```