QUIZ

What would the output be for a program like this:

```cpp
#include <iostream>

int main() {

  double sofa = 600;

  double &couch = sofa;

  couch = couch + 40;

  std::cout << sofa << "\n";

}
```

640

👏 Correct! Because **couch** is a reference to **sofa**, when **couch** changes, **sofa** also changes.

What should go in the blank to pass-by-reference with `const`?

```cpp
int square(    int        const        &i    ) {

  return i * i;

}

int main() {

  int side = 5;

  std::cout << square(side) << "\n";

}
```

👏 You got it!

What is a memory address?

The alias for something else.

A variable that stores a location.

The location in the memory, of an object.

👏 Correct! That's the definition of memory address.

A keyword that tells the compiler that we won't change something.

What would the output be for a program like this:

```cpp
#include <iostream>

void square(int &i) {

  i = i * i;

}

int main() {

  int num = 5;

  square(num);

  std::cout << num << "\n";

}
```

10

0x7ffd7caa5b54

25

👏 Correct! By using pass-by-reference, the parameter is modified. num started at 5, but then it became 25.

What is the difference between a reference and a pointer?

A pointer is more modern and it's originated in C++.

References can be changed to alias something else.

A reference is an alias for something else, while a pointer stores the memory address of something else.

👏 Correct! Pointers are an older mechanism that was inherited from C, while references are a new mechanisms that originated in C++.