Show what will be printed by each of the following programs.

1. #include <iostream>

using namespace std;

void doglobal();

void dolocal();

void doref(int&);

void doval(int);

int x;

int main()

{

x = 15;

doref(x);

cout << "x = " << x << " after the call to doref\n";

x = 16;

doval(x);

cout << "x = " << x << " after the call to doval\n";

x = 17;

dolocal();

cout << "x = " << x << " after the call to dolocal\n";

x = 18;

doglobal();

cout << "x = " << x << " after the call to doglobal\n";

return 0;

}

void doref(int& a)

{

a = 3;

}

void doval(int b)

{

b = 4;

}

void dolocal()

{

int x;

x = 5;

}

void doglobal()

{

x = 7;

}

Output:

**x = 3 after the call to doref**

**x = 16 after the call to doval**

**x = 17 after the call to dolocal**

**x = 7 after the call to doglobal**

2. #include <iostream>

using namespace std;

int num = 10;

void one();

void two(int);

void three();

void four(int&);

void five(int&);

int main()

{

int num = 1;

cout << "At start of main num = " << num << endl;

one();

cout << "After call to one num = " << num << endl;

two(num);

cout << "After call to two num = " << num << endl;

three();

cout << "After call to three num = " << num << endl;

four(num);

cout << "After call to four num = " << num << endl;

two(num);

cout << "After call to two num = " << num << endl;

one();

cout << "After call to one num = " << num << endl;

five(num);

cout << "After call to five num = " << num << endl;

one();

cout << "After call to one num " << num << endl;

}

void one()

{

cout << " At the start of one num = " << num << endl;

num = 50;

cout << " At the end of one num = " << num << endl;

}

void two(int num)

{

cout << " At the start of two num = " << num << endl;

num = 5;

cout << " At the end of two num = " << num << endl;

}

void three()

{

int num = 100;

cout << " At the start of three num = " << num << endl;

num = 200;

cout << " At the end of three num = " << num << endl;

}

void four(int& num)

{

cout << " At the start of four num = " << num << endl;

num = 25;

cout << " At the end of four num = " << num << endl;

}

void five(int& i)

{

cout << " At the start of five num = " << num << endl;

num = 2;

i = 3;

cout << " At the end of five num = " << num << endl;

}

Output:

**At start of main num = 1**

**At the start of one num = 10**

**At the end of one num = 50**

**After call to one num = 1**

**At the start of two num = 1**

**At the end of two num = 5**

**After call to two num = 1**

**At the start of three num = 100**

**At the end of three num = 200**

**After call to three num = 1**

**At the start of four num = 1**

**At the end of four num = 25**

**After call to four num = 25**

**At the start of two num = 25**

**At the end of two num = 5**

**After call to two num = 25**

**At the start of one num = 50**

**At the end of one num = 50**

**After call to one num = 25**

**At the start of five num = 50**

**At the end of five num = 2**

**After call to five num = 3**

**At the start of one num = 2**

**At the end of one num = 50**

**After call to one num 3**

3. #include <iostream>

using namespace std;

void triple(int);

int main(void)

{

int x;

for (x = 1; x <= 5; x++)

triple(x);

}

void triple(int value)

{

static int total = 0;

int answer;

answer = 3 \* value;

total += answer;

cout << value << ' ' << answer << endl;

cout << "total " << total

<< endl << endl;

}

Output:

**1 3**

**total 3**

**2 6**

**total 9**

**3 9**

**total 18**

**4 12**

**total 30**

**5 15**

**total 45**

4. Show what will be printed by the following program.

#include <iostream>

using namespace std;

int g1, g2;

void varval(int, int&);

int showscope(int);

int main()

{

g1 = 1;

g2 = 2;

varval(g1,g2);

cout << g1 << endl;

cout << g2 << endl;

g2 = showscope(g1);

cout << g1 << endl;

cout << g2 << endl;

return 0;

}

void varval(int pm1, int&pm2)

{

int pr1, pr2;

pr1 = 1;

pr2 = 2;

pm1 = pm1 + pr1 + pr2;

pm2 = pm2 + pr1 + pr2;

}

int showscope(int pm1)

{

int g1, fn;

g1 = 0;

fn = 2;

pm1 = pm1 + fn;

cout << pm1 << endl;

cout << g1 << endl;

return g1;

}

Output:

**1**

**5**

**3**

**0**

**1**

**0**

5. What is the output if the input is 10?

#include <iostream>

using namespace std;

int secret(int, int);

void func(int x, int& y);

int main()

{

int num1, num2;

num1 = 6;

cout << "Enter a positive integer: ";

cin >> num2;

cout << endl;

cout << secret(num1, num2) << endl;

num2 = num2 - num1;

cout << num1 << " " << num2 << endl;

func(num2, num1);

cout << num1 << " " << num2 << endl;

return 0;

}

int secret(int a, int b)

{

int d;

d = a + b;

b = a \* d;

return b;

}

void func (int x, int& y)

{

int val1, val2;

val1 = x + y;

val2 = x \* y;

y = val1 + val2;

cout << val1 << " " << val2 << endl;

}

Output:

**Enter a positive integer: 10**

**96**

**6 4**

**10 24**

**34 4**

6. What is the output of the following program?

#include <iostream>

using namespace std;

void find(int a, int& b, int& c);

int main()

{

int one, two, three;

one = 5;

two = 10;

three = 15;

find(one, two, three);

cout << one << ", " << two << ", " << three << endl;

find(two, one, three);

cout << one << ", " << two << ", " << three << endl;

find(three, two, one);

cout << one << ", " << two << ", " << three << endl;

find(two, three, one);

cout << one << ", " << two << ", " << three << endl;

return 0;

}

void find(int a, int& b, int& c)

{

int temp;

c = a + b;

temp = a;

a = b;

b = 2 \* temp;

}

Output:

**5, 10, 15**

**20, 10, 15**

**25, 30, 15**

**45, 30, 60**