1. What is the result?

a) \(2 + 3 \times 4 - 6\)

b) \(5 + 11 / 3\)

c) \(11 \% 3 \times 4\)

d) \((2 + 1) \times 3 - 1\)

2. Create boolean test conditions

a) myHeight is greater than 2

b) y is odd and less than 10

c) At least one of x or y is 3

d) t is between 2.1 and 2.3 inclusive
4. What is the output?

```cpp
#include <iostream>
using namespace std;

int main() {
    int x = 1;
    if (x >= 2 || x != 17)
        cout << x << endl;
    else
        cout << "Have a good day" << endl;
    return 0;
}
```

5. What is the output?

```cpp
#include <iostream>
using namespace std;

int main() {
    int x = 17;
    if (x >= 2 && x != 17)
        cout << x << endl;
    else
        cout << "Have a good day" << endl;
    return 0;
}
```

6. What is the output?

```cpp
#include <iostream>
using namespace std;

int main() {
    int x = 11, y = 5;
    int answer;
    answer = x / y;
    cout << answer << endl;
    return 0;
}
```

7. What is the output?

```cpp
#include <iostream>
using namespace std;

int main() {
    int x = 9, y = 2;
    cout << x / y << endl;
    cout << (double)x / (double)y << endl;
    cout << (double)x / y << endl;
    return 0;
}
```
8. What is the output?

```cpp
#include <iostream>
using namespace std;

int main() {
    int x = 5, y = 10;
    y = x++;
    cout << x << " " << y << endl;
    y = ++x;
    cout << x << " " << y << endl;
    return 0;
}
```

9. Find the Errors

```cpp
#include <iostream>
using namespace std;

int main() {
    int x = 6;
    double y = 2.5;
    z = 1;
    cin >> z;
    if (x = y)
        cout << "x and y match";
    else
        cout >> "x and y do not match";
    return 0;
}
```

10. Write if/else code

a) Write a series of if statements (use only if) that will output a student's letter grade based on the input. Assume the input (already received) is called `examScore` and that the value of `examScore` is greater than 70 and less than 100.

b) Write an if block (if and else if) that will output a student's letter grade based on the input. Assume the input (already received) is called `examScore` and that the value of `examScore` is greater than 70 and less than 100.

11. Write Loop code

a) Write a snippet of code that prints all odd numbers between 0 and X (inclusive), where X is given by the user. Use a while loop.

b) Write a snippet of code that prints all odd numbers between 0 and X (inclusive), where X is given by the user. Use a for loop.
12. Rewrite as a switch

```cpp
if (rank == 1) || (rank == 2)
    cout << "Lower division" << endl;
else {
    if (rank == 3) || (rank == 4)
        cout << "Upper division" << endl;
    else
        if (rank == 5)
            cout << "Graduate student" << endl;
        else
            cout << "Invalid rank" << endl;
}
```

13. True or False

a) The statement “x++” adds one to x.

b) A semi-colon is needed at the end of a while code block.

c) Once a string variable has been created, it cannot be changed.

d) The first element of an array is position 1.

14. Rewrite as a for loop

a) The statement “x++” adds one to x.

```cpp
int i = 2;
while (i <= 18) {
    cout << '*';
    i += 3;
}
```

b) What is the output?

15. What is the output?

```cpp
int number = 0;
int sum = 0;
int limit = 20;
while (number > limit) {
    sum += number;
    number += 2;
}
```

```cpp
cout << "Sum: " << sum << endl;
```
16. What is the output?

```cpp
int number = 100;
int sum = 0;
int limit = 20;

while( number > limit ) {
    sum += number;
    number += 2;
}

cout << "Sum: " << sum << endl;
```

17. What is the output?

```cpp
int number = 0;
int sum = 0;
int limit = 20;

while( number < limit ) {
    sum += number;
    number += 2;
}

cout << "Sum: " << sum << endl;
```

18. What is the output?

```cpp
for( int i = 0; i < 4; i++ ) {
    for( int j = 1; j < 6; j++ )
        cout << "*";
}
```

19. Random Numbers

- Write a program that prints 10 random numbers between 1 and 100. Use an appropriate seed.