

1. What is the result?

- a) $2 + 3 * 4 - 6$
- b) $5 + 11 / 3$
- c) $11 \% 3 * 4$
- d) $(2 + 1) * 3 - 1$

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 btw 2.1 and 2.3 (inclusive)

3. What is the output?

```
#include <iostream>
using namespace std;
int main() {
    int x = 12;
    if ((x >= 2) || (x != 17))
        cout << x << endl;
    else
        cout << "Have a good day!" << endl;
    return 0;
}
```

4. What is the output?

```
#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?

```
#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?

```
#include <iostream>
using namespace std;
int main() {
    int x = 17;
    if ((x >= 2) && (x != 17))
        if (x > 15)
            cout << x << endl;
    else
        cout << "Have a good day!" << endl;
    return 0;
}
```

7. What is the output?

```
#include <iostream>
using namespace std;
int main() {
    int x = 11, y = 5;
    int answer;
    answer = x / y;
    cout << answer << endl;
    return 0;
}
```

8. What is the output?

```
#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;
    cout << x / (double) y << endl;
    return 0;
}
```

9. What is the output?

```
#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;
}
```

10. Find the errors

```
#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;
}
```

11. Write if/else code

a) Write an if block (ifs and else ifs) 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 a series of if statements 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.

12. Write LOOP code

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

13. Rewrite as a switch

```
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;
    }
}
```

15. Re-write as a for loop

```
#include <iostream>
using namespace std;
int main() {
    int i = 2;
    while (i <= 18)
    {
        cout << "*";
        i += 3;
    }
    return 0;
}
```

14. True or False

- a) The statement "x++;" adds one to x.
- b) The compiler creates an executable file.
- c) Abstraction allows users to ignore the details.
- d) A semicolon is needed at the end of a while code block.

16. What is the output?

```
#include <iostream>
using namespace std;
int main() {
    int number = 0;
    int sum = 0;
    int limit = 20;
    while (number > limit)
    {
        sum += number;
        number += 2;
    }
    cout << "Sum: " << sum << endl;
    return 0;
}
```

17. What is the output?

```
#include <iostream>
using namespace std;
int main() {
    int number = 100;
    int sum = 0;
    int limit = 20;
    while (number > limit)
    {
        sum += number;
        number += 2;
    }
    cout << "Sum: " << sum << endl;
    return 0;
}
```

18. What is the output?

```
#include <iostream>
using namespace std;
int main() {
    int number = 0;
    int sum = 0;
    int limit = 10;
    while (number < limit)
    {
        sum += number;
        number += 2;
    }
    cout << "Sum: " << sum << endl;
    return 0;
}
```

19. What is the output?

```
#include <iostream>
using namespace std;
int main() {
    for (int i = 0; i < 4; i++)
    {
        for (int j = i; j < 6; j++)
            cout << "*";
        cout << endl;
    }
    return 0;
}
```

20. RNG

Write a program that prints 10 random numbers between 1 and 100. Let the user choose the seed for the generator.