1. Assume that the following variables are defined:

```
int age;
double pay;
char section;
```

Write a single cin statement that will read input into each of these variables.   1. cin >> age >> pay >> section;

2. Assume a string object has been defined as follows: string description;

A) Write a cin statement that reads in a one-word string.

B) Write a statement that reads in a string that can contain multiple words separated by blanks.

A) cin >> description;

B) getline(cin, description);

3. What header files must be included in the following program?

```
int main()
 {
 double amount = 89.7;
 cout << showpoint << fixed;
 cout << setw(8) << amount << endl;
 return 0;
 }
```

3. iostream and iomanip

4. Complete the following table by writing the value of each expression in the Value column.

Expression Value

28 / 4 − 2

6 + 12 * 2 − 8

4 + 8 * 2

6 + 17 % 3 − 2

2 + 22 * (9 − 7)

(8 + 7) * 2

(16 + 7) % 2 − 1

12 / (10 − 6)

(19 − 3) * (2 + 2) / 4   5, 22, 20, 6, 46, 30, 0, 3, 16

5. Write C++ expressions for the following algebraic expressions:

A = 12x

z = 5x + 14y + 6k

y = x^4

g = h + 12 / 4k

c = a^3 / b^2k^4   5.

a = 12 * x;

z = 5 * x + 14 * y + 6 * k;

y = pow(x, 4);

```
g = (h + 12) / (4 * k);
c = pow(a, 3) / (pow(b, 2) * pow(k, 4));
```

6. Assume a program has the following variable definitions:

```
int units;
float mass;
double weight;
```

and the following statement:

```
weight = mass * units;
```

Which automatic data type conversion will take place?

A) mass is demoted to an int, units remains an int, and the result of mass * units is an int .

B) units is promoted to a float, mass remains a float, and the result of mass * units is a float .

C) units is promoted to a float, mass remains a float, and the result of mass * units is a double .

C

7. Assume a program has the following variable definitions:

```
int a, b = 2;
float c = 4.2;
```

and the following statement:

```
a = b * c;
```

What value will be stored in a ?

A) 8.4

B) 8

C) 0

D) None of the above7. B

8. Assume that qty and salesReps are both integers. Use a type cast expression to rewrite the following statement so it will no longer perform integer division.

unitsEach = qty / salesReps; Either of these will work:

```
unitsEach = static_cast<double>(qty) / salesReps;
unitsEach = qty / static_cast<double>(salesReps);
```

9. Rewrite the following variable definition so the variable is a named constant.

int rate;   9. const int RATE = 12;

10. Complete the following table by writing statements with combined assignment operators in the right-hand column. The statements should be equivalent to the statements in the left-hand column. Statements with Assignment Operator Statements with Combined Assignment Operator

```
x = x + 5;
total = total + subtotal;
dist = dist / rep;
ppl = ppl * period;
inv = inv − shrinkage;
num = num % 2;         x += 5;
total += subtotal;
dist /= rep;
ppl */ period;
inv -= shrinkage;
```

```
num %= 2;
```

11. Write a multiple assignment statement that can be used instead of the following group of assignment statements:

```
east = 1;
west = 1;
north = 1;
south = 1;       11. east = west = north = south = 1;
```

12. Write a cout statement so the variable divSales is displayed in a field of 8 spaces, in fixed point notation, with a precision of 2 decimal places. The decimal point should always be displayed.   cout << fixed << showpoint << setprecision(2);

```
cout << setw(8) << divSales;
```

13. Write a cout statement so the variable totalAge is displayed in a field of 12 spaces, in fixed point notation, with a precision of 4 decimal places. 13. cout << setw(12) << fixed

```
 << setprecision(4) << totalAge;
```

14. Write a cout statement so the variable population is displayed in a field of 12 spaces, left-justified, with a precision of 8 decimal places. The decimal point should always be displayed.
#include <iostream> and <iomanip>

```
cout << left << setw(12) << fixed << showpoint << setprecision(8);
cout << population << endl;
```

15. The __________ library function returns the cosine of an angle.   cos

```
y = cos(x);
```

16. The __________ library function returns the sine of an angle.   sin

```
y = sin(x);
```

17. The __________ library function returns the tangent of an angle.   tan

```
y = tan(x)
```

18. The __________ library function returns the exponential function of a number.   exp

```
y = exp(x)
```

19. The __________ library function returns the remainder of a floating point division.   fmod

NOTE:

```
y = fmod(x, z);
```

Returns, as a double , the remainder of the first argument divided by the second argument. Works like the modulus operator, but the arguments are doubles. (The modulus operator only works with integers.) Take care not to pass zero as the second argument. Doing so would cause division by zero.

20. The __________ library function returns the natural logarithm of a number.   log

y = log(x)
21. The __________ library function returns the base-10 logarithm of a number. ~ log10 log10

y = log10(x)
22. The __________ library function returns the value of a number raised to a power. ~ pow pow

y = pow(x, exponent value)
23. The __________ library function returns the square root of a number. ~ sqrt   sqrt

y = sqrt(x)
24. The __________ file must be included in a program that uses the mathematical functions.
Cmath header file

```
28. using namespace std;
int main ()
 {
 double number1, number2, sum;
 Cout << "Enter a number: ";
 Cin << number1;
 Cout << "Enter another number: ";
 Cin << number2;
 number1 + number2 = sum;
 Cout "The sum of the two numbers is " << sum
 return 0;
 }
```

1) Missing preprocessor directive and header file. (#include, <iostream>)
2) Capitalized Cout, Cin, Cout, Cin, Cout.
3) Cin uses >> not <<; two cases.
4) sum = number1 + number2
5) missing << after last cout.
6) no ; after sum