2.5

#include <iostream>

using namespace std;

int main()

{

// Prompt the user to enter subtotal

double subtotal, gratuity;

cout << "Enter the subtotal and a gratuity rate: ";

cin >> subtotal >> gratuity;

// Compute the gratuity and total

double gratuityRate = gratuity / 100 \* subtotal;

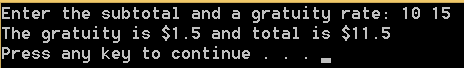
double total = gratuityRate + subtotal;

// Display results

cout << "The gratuity is $" << gratuityRate << " and total is $" << total << endl;

return 0;

}



2.7

#include <iostream>

using namespace std;

int main()

{

long int minutes;

// Prompt the user to enter minutes

cout << "Enter the number of minutes: ";

cin >> minutes;

// Show as number of years and days

int numberOfYears, remainingAmount;

numberOfYears = minutes / 525600;

remainingAmount = minutes % 525600;

int numberOfDays;

numberOfDays = remainingAmount / 1440;

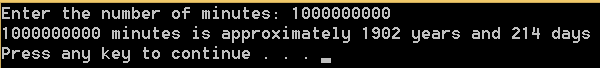
// Display results

cout << minutes << " minutes is approximately " << numberOfYears <<

" years and " << numberOfDays << " days" << endl;

return 0;

}



2.13

#include <iostream>

using namespace std;

int main()

{

double amount;

cout << "Enter the monthly saving amount: ";

cin >> amount;

// Compute the account value after sixth month

double factor1 = 1 + 0.00417;

double factor2 = amount \* factor1;

factor2 = (amount + factor2) \* factor1;

factor2 = (amount + factor2) \* factor1;

factor2 = (amount + factor2) \* factor1;

factor2 = (amount + factor2) \* factor1;

factor2 = static\_cast<int>((amount + factor2) \* factor1 \* 100) / 100.0;

// Display the results

cout << "After the sixth month, the account value is $" << factor2 << endl;

system("pause");

return 0;

}



3.1

#include <iostream>

using namespace std;

int main()

{

double a, b, c;

double discriminant;

cout << "Enter a, b, c in that order:";

cin >> a >> b >> c;

discriminant = pow(b, 2) - 4 \* a \* c;

double r1, r2;

r1 = (-b + pow(discriminant, 0.5)) / (2 \* a);

r2 = (-b - pow(discriminant, 0.5)) / (2 \* a);

if (discriminant > 0)

cout << "The two roots are " << r1 << " and " << r2 << endl;

else if (discriminant == 0)

cout << "The root is " << r1 << endl;

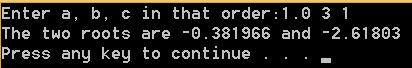
else

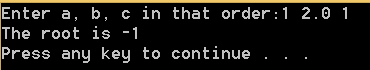
cout << "The equation has no real roots" << endl;

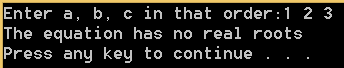
system("pause");

return 0;

}







3.11

#include <iostream>

using namespace std;

int main()

{

double weight, cost;

cout << "Enter weight (in pounds): ";

cin >> weight;

if (weight < 0)

cout << "Invalid weight" << endl;

else if (weight <= 1)

cout << "Cost is $3.5" << endl;

else if (weight <= 3)

cout << "Cost is $5.5" << endl;

else if (weight <= 10)

cout << "Cost is $8.5" << endl;

else if (weight <= 20)

cout << "Cost is $10.5" << endl;

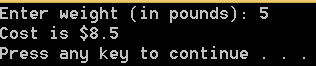
else

cout << "The package cannot be shipped." << endl;

system("pause");

return 0;

}





3.13

#include <iostream>

using namespace std;

int main()

{

// Prompt the user to enter filing status

cout << "(0-single filer, 1-married jointly, "

<< "or qualifying widow(er), " << endl

<< "2-married separately, 3-head of household)" << endl

<< "Enter the filing status: ";

int status;

cin >> status;

// Prompt the user to enter taxable income

cout << "Enter the taxable income: ";

double income;

cin >> income;

// Compute tax

double tax = 0;

if (status == 0) // Compute tax for single filers

{

if (income <= 8350)

tax = income \* 0.10;

else if (income <= 33950)

tax = 8350 \* 0.1 + (income - 8350) \* 0.15;

else if (income <= 82250)

tax = 8350 \* 0.1 + (33950 - 8350) \* 0.15

+ (income - 33950) \* 0.25;

else if (income <= 171550)

tax = 8350 \* 0.1 + (33950 - 8350) \* 0.15

+ (82250 - 33950) \* 0.25 + (income - 82250) \* 0.28;

else if (income <= 372950)

tax = 8350 \* 0.1 + (33950 - 8350) \* 0.15

+ (82250 - 33950) \* 0.25 + (171550 - 82250) \* 0.28

+ (income - 171550) \* 0.33;

else

tax = 8350 \* 0.1 + (33950 - 8350) \* 0.15

+ (82250 - 33950) \* 0.25 + (171550 - 82250) \* 0.28

+ (372950 - 171550) \* 0.33 + (income - 372950) \* 0.35;

}

else if (status == 1) // Compute tax for married file jointly or qualifying widow(er)

{

if (income <= 16700)

tax = income \* 0.10;

else if (income <= 67900)

tax = 16700 \* 0.1 + (income - 16700) \* 0.15;

else if (income <= 137050)

tax = 16700 \* 0.1 + (67900 - 16700) \* 0.15

+ (income - 67900) \* 0.25;

else if (income <= 208850)

tax = 16700 \* 0.1 + (67900 - 16700) \* 0.15

+ (137050 - 67900) \* 0.25 + (income - 137050) \* 0.28;

else if (income <= 372950)

tax = 16700 \* 0.1 + (67900 - 16700) \* 0.15

+ (137050 - 67900) \* 0.25 + (208850 - 137050) \* 0.28

+ (income - 208850) \* 0.33;

else

tax = 16700 \* 0.1 + (67900 - 16700) \* 0.15

+ (137050 - 67900) \* 0.25 + (208850 - 137050) \* 0.28

+ (372950 - 208850) \* 0.33 + (income - 372950) \* 0.35;

}

else if (status == 2) // Compute tax for married separately

{

if (income <= 8350)

tax = income \* 0.10;

else if (income <= 33950)

tax = 8350 \* 0.1 + (income - 8350) \* 0.15;

else if (income <= 68525)

tax = 8350 \* 0.1 + (33950 - 8350) \* 0.15

+ (income - 33950) \* 0.25;

else if (income <= 104425)

tax = 8350 \* 0.1 + (33950 - 8350) \* 0.15

+ (68525 - 33950) \* 0.25 + (income - 68525) \* 0.28;

else if (income <= 186475)

tax = 8350 \* 0.1 + (33950 - 8350) \* 0.15

+ (68525 - 33950) \* 0.25 + (104425 - 68525) \* 0.28

+ (income - 104425) \* 0.33;

else

tax = 8350 \* 0.1 + (33950 - 8350) \* 0.15

+ (68525 - 33950) \* 0.25 + (104425 - 68525) \* 0.28

+ (186475 - 104425) \* 0.33 + (income - 186475) \* 0.35;

}

else if (status == 3) // Compute tax for head of household

{

if (income <= 11950)

tax = income \* 0.10;

else if (income <= 45500)

tax = 11950 \* 0.1 + (income - 11950) \* 0.15;

else if (income <= 117450)

tax = 11950 \* 0.1 + (45500 - 11950) \* 0.15

+ (income - 45500) \* 0.25;

else if (income <= 190200)

tax = 11950 \* 0.1 + (45500 - 11950) \* 0.15

+ (117450 - 45500) \* 0.25 + (income - 117450) \* 0.28;

else if (income <= 372950)

tax = 11950 \* 0.1 + (45500 - 11950) \* 0.15

+ (117450 - 45500) \* 0.25 + (190200 - 117450) \* 0.28

+ (income - 190200) \* 0.33;

else

tax = 11950 \* 0.1 + (45500 - 11950) \* 0.15

+ (117450 - 45500) \* 0.25 + (190200 - 117450) \* 0.28

+ (372950 - 190200) \* 0.33 + (income - 372950) \* 0.35;

}

else

{

cout << "Error: invalid status" << endl;

system("pause");

return 0;

}

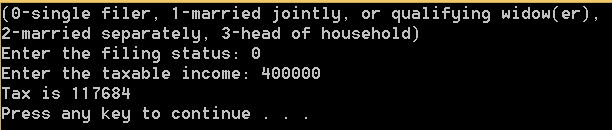
// Display the result

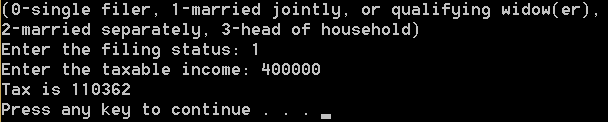
cout << "Tax is " << static\_cast<int>(tax \* 100) / 100.0 << endl;

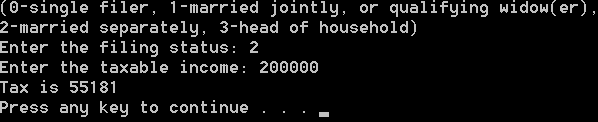
system("pause");

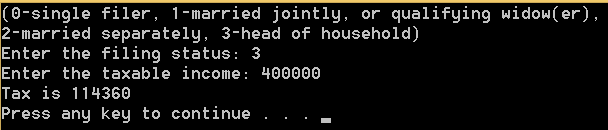
return 0;

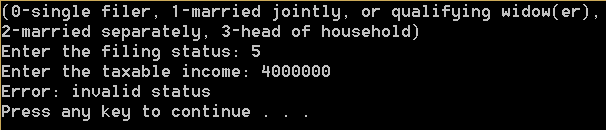
}











3.23

#include <iostream>

using namespace std;

int main()

{

double x, y, slope;

cout << "Enter a point's x- and y- coordinates, eg. (x,y): ";

cin >> x >> y;

// the slope of the line connecting (0,100) to (x,y)

slope = (y - 100) / (x - 0); // change in y / change in x

if (x < 0 || x > 200)

cout << "The point is not in the triangle" << endl;

else if (y < 0 || y > 100)

cout << "The point is not in the triangle" << endl;

else if (slope > (-1.0 / 2))

cout << "The point is not in the triangle" << endl;

else

cout << "The point is in the triangle" << endl;

system("pause");

return 0;

}

