1. Write a program that prompts the user for a menu choice. The program will display a message based on the following table:

|  |  |
| --- | --- |
| Choice | Message |
| 1 | "Calculate area" |
| 2 | "Calculate volume" |
| 3 | "Calculate surface area" |
| 0 | "Exit the program" |
| << any other input>> | "ERROR: Invalid choice " |

1. Write a program that allows the user to enter two integers and a character If the character is ***A,*** add the two integers If it is S, subtract the second integer from the first if it is ***M,*** multiply the integers Display the results of the arithmetic
2. Write a program that prompts the user for the number of courses and residency status (domestic or international) and calculates tuition cost. Cost is based on the table below.

|  |  |
| --- | --- |
| Domestic | $325 per course |
| International | $1375 per course |

You decide how you want the user to enter her/his residency status and prompt accordingly, also you should use named constants for the cost per course

1. Write an application that asks a user to enter an IQ score. If the score is a number less than 0 or greater than 200, issue an error message; otherwise, issue an “above average”, “average”, or “below average” message for scores over, at, or under 100, respectively
2. Write a program that prompts the user for a day of the week. The program will display a message based on the following table:

|  |  |
| --- | --- |
| Choice | Message |
| Sun | "Home" |
| Mon | "Work" |
| Tue | "Work" |
| Wed | "Home" |
| Thu | "Work" |
| Fri | "Work" |
| Sat | "Work" |

1. The average cost of a college textbook is $125. There is a premium of 20% on hardcover text and a discount of 5% on sales of more than 4 textbooks. Write a program to prompt the user for the appropriate inputs and compute and display the before-tax cost of the textbooks.  
   Sample calculation: price of 10 hardcover text = 10 \* 125 + premium –discount  
   price = 1250 + 20% of 1250 – 5% of 1250  
   price = $1437.50
2. Write a program to calculate the roots of a quadratic equation. The flowchart below illustrates a possible solution

p = -b/2a  
d = b2-4ac

a == 0

Display "invalid input for a"

Display p + q and p - q

Display p + qi and p - qi

Stop

d >= 0

q = Math.Sqrt(d)/2a

q = Math.Sqrt(-d)/2a

Prompt and accept a, b & c

Start

true

true

false

false

1. Write a program for a furniture company. Ask the user to choose Pine Oak or Mahogany. Show the price of a table manufactured with the chosen wood Pine tables cost $100, Oak tables cost $225, and Mahogany tables cost $310. Use named constants and switch.
2. Write a program that calculates the tax on an item, based on the province code. Your program will prompt the user for the 2-letter province code, and the cost of the item and then computes the tax based on the following table:

|  |  |
| --- | --- |
| Province | Rate |
| ON | 14% |
| PQ | 13% |
| Any other province | 0% |

Use named constants and if’s.

Try to accommodate all permutations of the 2-letter code.

1. Write a program that prompts the user or an hourly pay rate. If the value entered is less than $5 65, display an error message
2. Write a program that prompts a user for an hourly pay rate. If the value entered is less than $5 65 or greater than $49 99, display an error message
3. Write a program that prompts a user for an hourly pay rate. If the user enters values less than $5.65 or greater than $49 99, prompt the user again. If the user enters an invalid value again, display an appropriate error message. If the user enters a valid value on either the first or second attempt, display the pay rate as well as the weekly rate which calculated as 40 times the hourly rate
4. Write a program for a college’s admissions office. The user enters a numeric high school grade point average (for example, 3 2) and an admission test score. Print the message “Accept” if the student meets either of the following requirements

A grade point average of 3.0 or higher and an admission test score of at least 60

A grade point average of less than 3.0 and an admission test score of at least 80

If the student does not meet either of the qualification criteria, print ‘Reject”

1. Write a program that prompts the user for an hourly pay rate and hours worked. Compute gross pay (hours times pay rate), withholding tax, and net pay (gross pay minus withholding tax) Withholding tax is computed as a percentage of gross pay based on the following

**Gross Pay Withholding Percentage**   
Up to and including 300.00 10%   
300.01 and up 12%

* 1. Write an application for a lawn-mowing service. The lawn-mowing season lasts 20 weeks. The weekly fee for mowing a lot under 400 square feet is $25. The fee for a lot that is 400 square feet or more, but under 600 square feet, is $35 per week. The fee for a lot that is 600 square feet or over is $50 per week. Prompt the user for the length and width of a lawn, and then print the weekly mowing fee, as well as the total fee for the 20-week season
  2. To the Lawn application you created in Exercise 8a, add a prompt that asks the user whether the customer wants to pay (1) once, (2) twice, or (3) 20 times per year. If the user enters 1 for once, the fee for the season is simply the seasonal total. If the customer requests two payments, each payment is half the seasonal fee plus a $5 service charge. If the user requests 20 separate payments, add a $3 service charge per week. Display the number of payments the customer must make, each payment amount, and the total for the season