An Introduction to Programming with C++: Eighth Edition

Chapter 1 Answers

#### Review Questions

1. d sorting
2. c sequence
3. d sequence
4. a an algorithm
5. b repetition
6. c selection
7. b selection
8. a repetition
9. c both repetition and selection
10. b selection

#### Exercises

1. The answer to this TRY THIS Exercise is located at the end of Chapter 1 in the book.
2. The answer to this TRY THIS Exercise is located at the end of Chapter 1 in the book.
3. repeat for (each customer buying a TV)

enter the original price of the TV

if (the customer is one of the first 10)

calculate the discount by multiplying the original price by 25%

else

calculate the discount by multiplying the original price by 15%

end if

calculate the total due by subtracting the discount from the original price

print a bill showing the original price, discount, and total due

end repeat



1. repeat (4 times)

enter a number

calculate the sum by adding the number to the sum

end repeat

2. calculate the average by dividing the sum by 4

3. display the average

repeat for (each component name on the list)

read the component name from the list

search for the component

if (the component was received)

cross the component name off the list

else

circle the component name on the list

end if

end repeat

1. Version 1:

repeat for (each customer)

enter the number of tickets

if (the number of tickets is greater than 4)

display the message “You can purchase up to 4 tickets only.”

else

calculate the amount owed by multiplying the number of tickets by $35

display the amount owed

end if

end repeat

Version 2:

repeat for (each customer)

enter the number of tickets

if (the number of tickets is less than or equal to 4)

calculate the amount owed by multiplying the number of tickets by $35

display the amount owed

else

display the message “You can purchase up to 4 tickets only.”

end if

end repeat



1. repeat (6 times)

if (the flower is red)

pick the flower with your right hand

else

pick the flower with your left hand

end if

walk forward one complete step

end repeat

2. walk forward one complete step



repeat (5 times)

enter the employee’s name, hours worked, and pay rate

if (hours worked is less than or equal to 40)

calculate gross pay = hours worked times pay rate

else

calculate regular pay = pay rate times 40

calculate overtime hours = hours worked minus 40

calculate overtime pay = overtime hours \* pay rate \* 1.5

calculate gross pay = regular pay + overtime pay

end if

print the employee’s name and gross pay

end repeat

1. repeat (for each employee)

enter the employee’s payment schedule and annual salary

if (the employee’s payment schedule is weekly)

calculate gross pay = annual salary / 52

else

calculate gross pay = annual salary / 26

end if

display the gross pay

end repeat

1. multiply 7 by 5, giving a product of 35

2. divide 20 by 2, giving a quotient of 10

3. multiply 4 by 2, giving a product of 8

4. subtract the result of step 2 (10) from the result of step 1 (35), giving

a difference of 25

5. add the result of step 4 (25) to the result of step 3 (8), giving a sum of 33



1. enter Store A’s price and Store B’s price

2. calculate the cost at Store A by dividing Store A’s price by 2 and then

adding the result to Store A’s price

3. calculate the cost at Store B by multiplying Store B’s price by 2

4. if (the cost at Store A is less than or equal to the cost at Store B)

display the message “Buy at store A”

else

display the message “Buy at store B”

end if

1. repeat (3 times)

walk forward one complete step

end repeat

2. turn left 90 degrees

3. repeat (2 times)

walk forward one complete step

end repeat

4. turn right 90 degrees

5. repeat (3 times)

walk forward one complete step

end repeat

6. turn left 90 degrees

7. walk forward one complete step

8. turn right 90 degrees

9. repeat (4 times)

walk forward one complete step

end repeat

10. repeat (2 times)

turn right 90 degrees

end repeat

11. sit down



1. walk into the maze

2. turn left 90 degrees

3. repeat until (you are directly in front of a wall)

walk forward one complete step

end repeat

4. turn right 90 degrees

5. repeat until (you are directly in front of a wall)

walk forward one complete step

end repeat

6. turn right 90 degrees

7. repeat until (you are directly in front of a wall)

walk forward one complete step

end repeat

8. turn left 90 degrees

9. repeat until (you are directly in front of a wall)

walk forward one complete step

end repeat

10. turn left 90 degrees

11. repeat until (you are directly in front of a wall)

walk forward one complete step

end repeat

12. turn right 90 degrees

13. repeat until (you are directly in front of a wall)

walk forward one complete step

end repeat

14. turn left 90 degrees

15. repeat until (you are directly in front of a wall)

walk forward one complete step

end repeat

16. turn right 90 degrees

17. repeat until (you are out of the maze)

walk forward one complete step

end repeat