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.

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.

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

1.

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.

 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.

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