Iteration Class Work

Cohort: _____

An abstraction of a book used by a book retailer has three properties: Title, Author, and Price. Using this abstraction some books in the retailer's inventory are shown below. Use this example data to help create and test the algorithms developed below.

In developing the code-like form of the algorithm use

  for each book [*statements*]

to represent a "for each" iteration that performs the *statements* for each book.

| Title	Author	Price
"Harry Potter: Deathly Hallows"	J K Rowling	$10
"The Hunger Games"	Suzanne Collins	$10
"War and Peace"	Leo Tolstoy	$20
"Romeo and Juliette"	William Shakespeare	$5
"Fahrenheit 451"	Ray Bradbury	$6
"Dracula"	Bram Stoker	$4
"The Lord of the Rings"	J R Tolkein	$30
"The Hobbit"	J R. Tolkein	$7
"Computational Thinking"	Dennis Kafura	$0
"Oh The Places You'll Go"	Dr. Seuss	$3
"Mother Goose Rhymes"	Mother Goose	$5
"The Odyssey"	Homer	$8
"Introduction to Chemistry"	Bill Billington	$147
"Treasure Island"	Robert Louis Stevenson	$5
"The Chronicles of Narnia"	C.S. Lewis	$6

$$tp = 0$$
$$tp = tp + 10$$
$$10 = 10 + 10$$
$$20 = 20 + 20$$

Iteration Class Work

Cohort: _____1_____

1. We are doing inventory. What's the average price of our books?

a) Write the flowchart of an algorithm to find the average price of books.
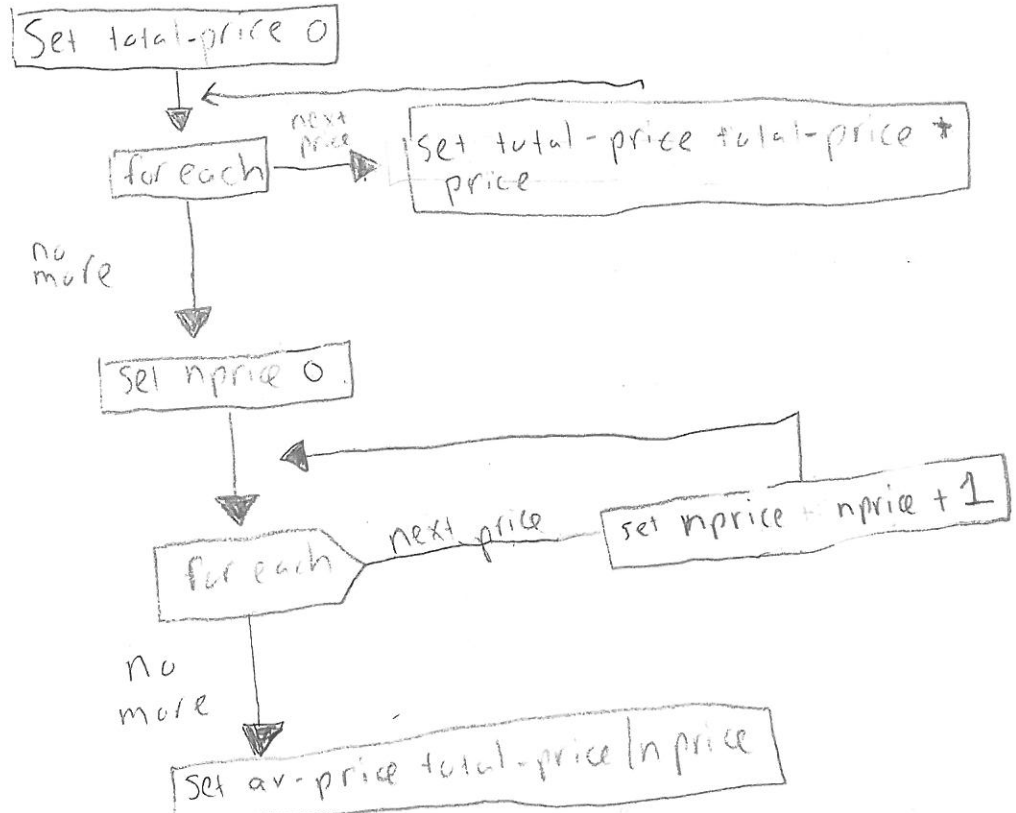
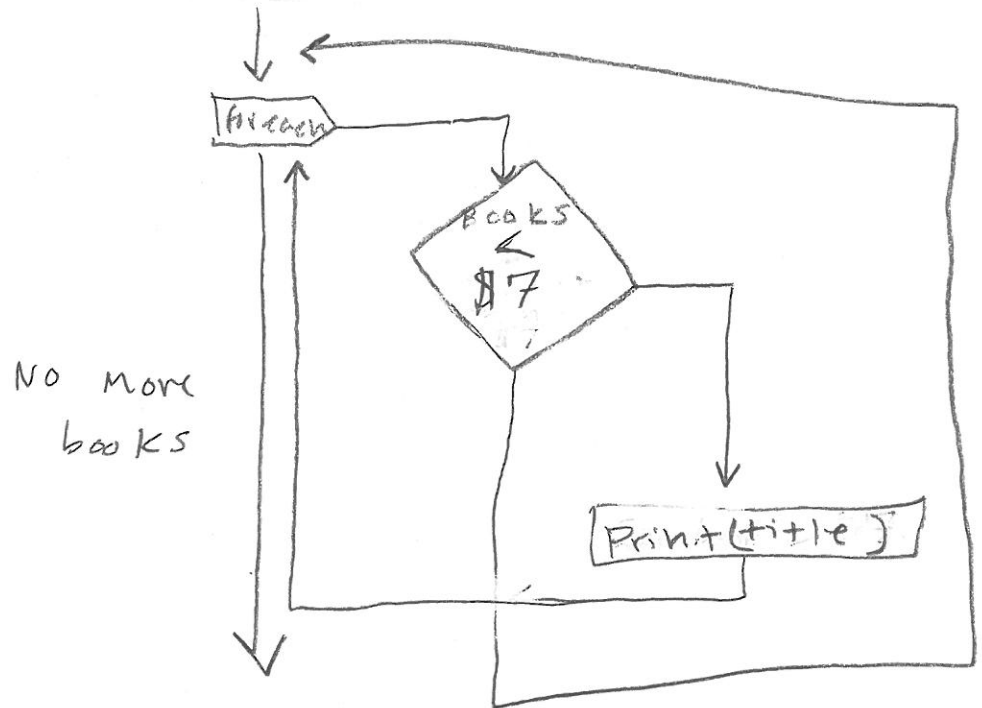· b) Write the code-like form of this algorithm.

```
Set total-price 0
for each price [
    set total-price total-price + price
]
Set nprice 0
for each price [
    set nprice + nprice + 1
]
Set av-price total-price/nprice
]
]
```

Iteration Class Work

Cohort: _____/_____

2. We want to know all of our cheap books. Output any books with a price below $7.

a) Write the flowchart of an algorithm to find the cheap books. When you find a cheap book use "print(Title)" to output the current book's title.

For each

Books < $7

No More books

Print(title)

b) Write the code-like form of this algorithm.

```
Set current max 0    for each book [
    If book price < $7 [
        [Print (title],
    ]
]
```

Iteration Class Work

Cohort: __2__

An abstraction of a book used by a book retailer has three properties: Title, Author, and Price. Using this abstraction some books in the retailer's inventory are shown below. Use this example data to help create and test the algorithms developed below.

In developing the code-like form of the algorithm use

  for each book [*statements*]

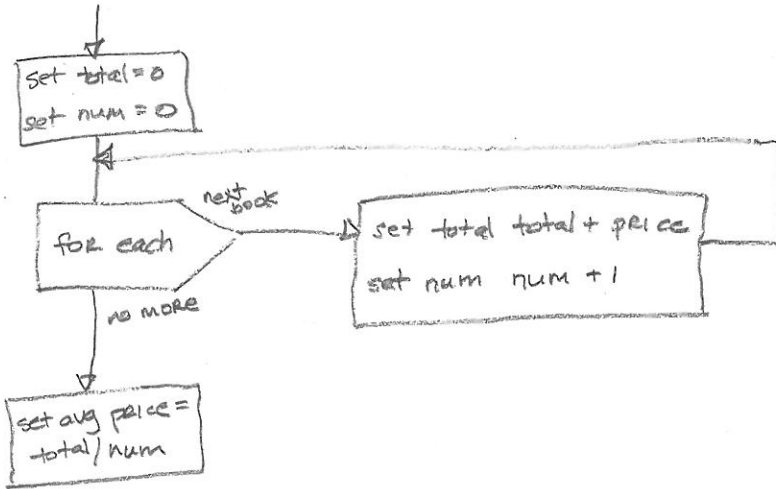to represent a "for each" iteration that performs the *statements* for each book.

Title	Author	Price
"Harry Potter: Deathly Hallows"	J K Rowling	$10
"The Hunger Games"	Suzanne Collins	$10
"War and Peace"	Leo Tolstoy	$20
"Romeo and Juliette"	William Shakespeare	$5
"Fahrenheit 451"	Ray Bradbury	$6
"Dracula"	Bram Stoker	$4
"The Lord of the Rings"	J R Tolkein	$30
"The Hobbit"	J R. Tolkein	$7
"Computational Thinking"	Dennis Kafura	$0
"Oh The Places You'll Go"	Dr. Seuss	$3
"Mother Goose Rhymes"	Mother Goose	$5
"The Odyssey"	Homer	$8
"Introduction to Chemistry"	Bill Billington	$147
"Treasure Island"	Robert Louis Stevenson	$5
"The Chronicles of Narnia"	C.S. Lewis	$6

Iteration Class Work

Cohort: ____2_____

1. We are doing inventory. What's the average price of our books?

a) Write the flowchart of an algorithm to find the average price of books.

```
        |
        v
  ┌─────────────┐
  │ Set total=0 │
  │ Set num = 0 │
  └─────────────┘
        |
        v
  ┌──────────┐   next      ┌──────────────────────────┐
  │          │   book      │ set total  total + price │
  │ for each │─────────────│                          │
  │          │             │ set num   num +1         │
  └──────────┘             └──────────────────────────┘
        |
     no more
        |
        v
  ┌──────────────┐
  │ set avg price=│
  │  total/num    │
  └──────────────┘
```
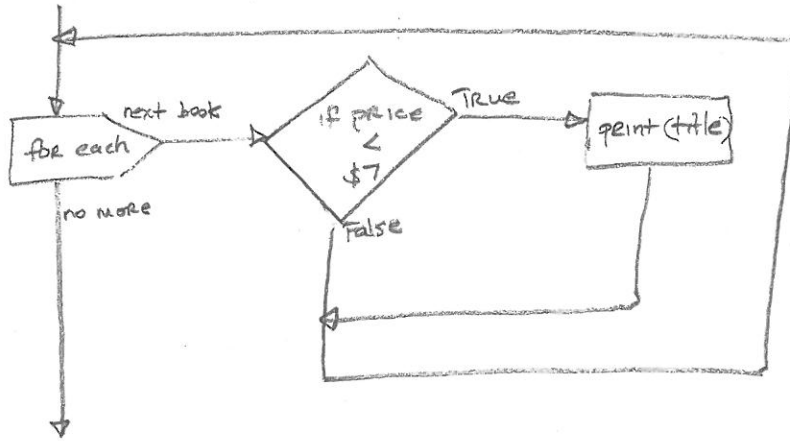
b) Write the code-like form of this algorithm.

```
set total = 0
set num = 0
for each[
        set total total + price
        set num   num + 1]

set avg price total/num
```

Cohort: _____2_____

2. We want to know all of our cheap books. Output any books with a price below $7.

a) Write the flowchart of an algorithm to find the cheap books. When you find a cheap book use "print(Title)" to output the current book's title.

b) Write the code-like form of this algorithm.

```
for each [
    if price < $7 [
         print title] ]
```

Iteration Class Work

Cohort: _____*3*_____

An abstraction of a book used by a book retailer has three properties: Title, Author, and Price. Using this abstraction some books in the retailer's inventory are shown below. Use this example data to help create and test the algorithms developed below.

In developing the code-like form of the algorithm use

   for each book [*statements*]

to represent a "for each" iteration that performs the *statements* for each book.
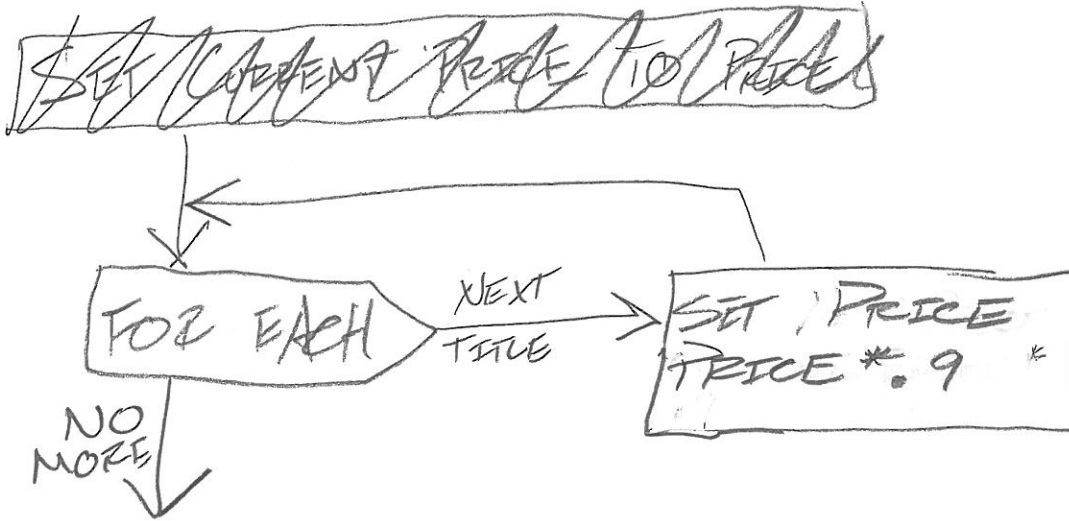
Title	Author	Price
"Harry Potter: Deathly Hallows"	J K Rowling	$10
"The Hunger Games"	Suzanne Collins	$10
"War and Peace"	Leo Tolstoy	$20
"Romeo and Juliette"	William Shakespeare	$5
"Fahrenheit 451"	Ray Bradbury	$6
"Dracula"	Bram Stoker	$4
"The Lord of the Rings"	J R Tolkein	$30
"The Hobbit"	J R. Tolkein	$7
"Computational Thinking"	Dennis Kafura	$0
"Oh The Places You'll Go"	Dr. Seuss	$3
"Mother Goose Rhymes"	Mother Goose	$5
"The Odyssey"	Homer	$8
"Introduction to Chemistry"	Bill Billington	$147
"Treasure Island"	Robert Louis Stevenson	$5
"The Chronicles of Narnia"	C.S. Lewis	$6

Cohort: _____

2. We want to put our books on sale. Reduce the price of all books by 10%.

a) Write the flowchart of an algorithm to reduce the price of books.

SET CURRENT PRICE TO PRICE

FOR EACH — NEXT TITLE → SET PRICE PRICE * .9

NO MORE

b) Write the code-like form of this algorithm.
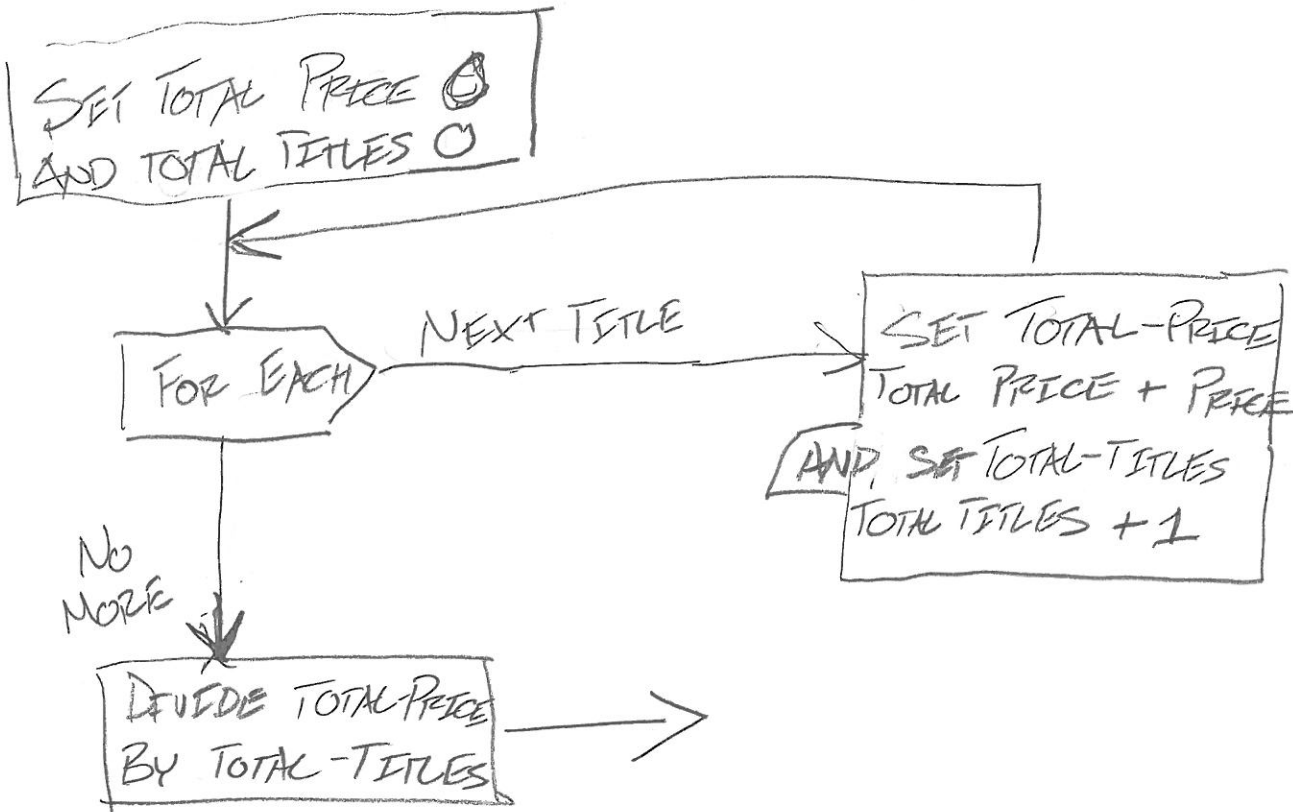
For each book [
    Set price
            price x .9]

Cohort: _____3_____

1. We are doing inventory. What's the average price of our books?

a) Write the flowchart of an algorithm to find the average price of books.

SET TOTAL PRICE 0
AND TOTAL TITLES 0

FOR EACH

NEXT TITLE

SET TOTAL-PRICE
TOTAL PRICE + PRICE
AND SET TOTAL-TITLES
TOTAL TITLES + 1

No MORE

DIVIDE TOTAL-PRICE
BY TOTAL-TITLES

b) Write the code-like form of this algorithm.

SET TOTAL-PRICE 0
and set total titles to 0
for each book [
set total price
total price + price
and set total titles
total titles + 1]
[Divide total price
by total-titles]

Iteration Class Work

Cohort: ___4___

An abstraction of a book used by a book retailer has three properties: Title, Author, and Price. Using this abstraction some books in the retailer's inventory are shown below. Use this example data to help create and test the algorithms developed below.

In developing the code-like form of the algorithm use

  for each book [*statements*]

to represent a "for each" iteration that performs the *statements* for each book.

Title	Author	Price
"Harry Potter: Deathly Hallows"	J K Rowling	$10
"The Hunger Games"	Suzanne Collins	$10
"War and Peace"	Leo Tolstoy	$20
"Romeo and Juliette"	William Shakespeare	$5
"Fahrenheit 451"	Ray Bradbury	$6
"Dracula"	Bram Stoker	$4
"The Lord of the Rings"	J R Tolkein	$30
"The Hobbit"	J R. Tolkein	$7
"Computational Thinking"	Dennis Kafura	$0
"Oh The Places You'll Go"	Dr. Seuss	$3
"Mother Goose Rhymes"	Mother Goose	$5
"The Odyssey"	Homer	$8
"Introduction to Chemistry"	Bill Billington	$147
"Treasure Island"	Robert Louis Stevenson	$5
"The Chronicles of Narnia"	C.S. Lewis	$6

Cohort: _____4_____

1. We are doing inventory. What's the average price of our books?

a) Write the flowchart of an algorithm to find the average price of books.
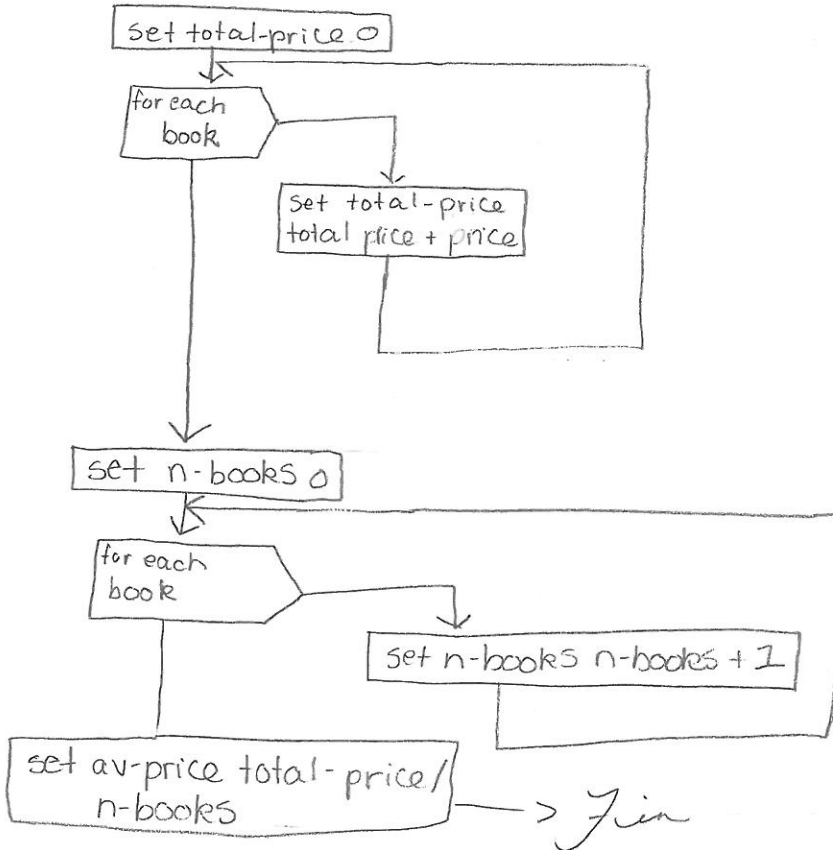
b) Write the code-like form of this algorithm.

```
Set total-price 0
for each price [
  Set total-price total-price +1 ]
Set n-books 0
for each book [
  Set n-books n-books + 1 ]
Set av-price total-price/n-books

Fin
```
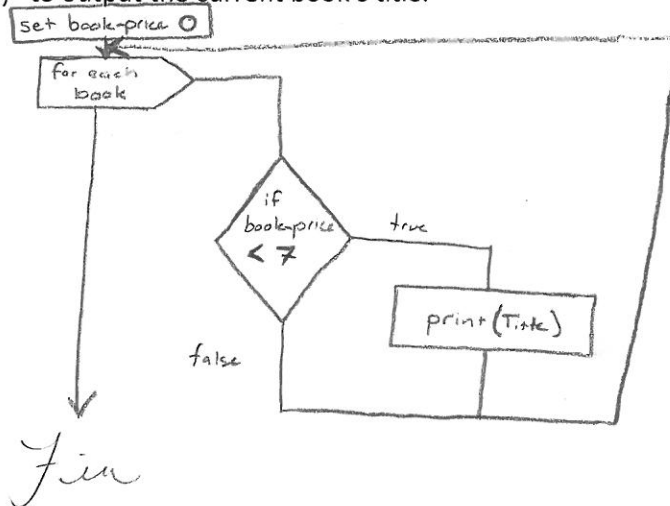
Cohort: ____4____

2. We want to know all of our cheap books. Output any books with a price below $7.

a) Write the flowchart of an algorithm to find the cheap books. When you find a cheap book use "print(Title)" to output the current book's title.

set book-price 0

for each book

if bookprice < 7

true

print (Title)

false

Fin

b) Write the code-like form of this algorithm.

```
set book-Price 0
For Each [
    if Book-Price < .7 [
        Print title ]]

End
```
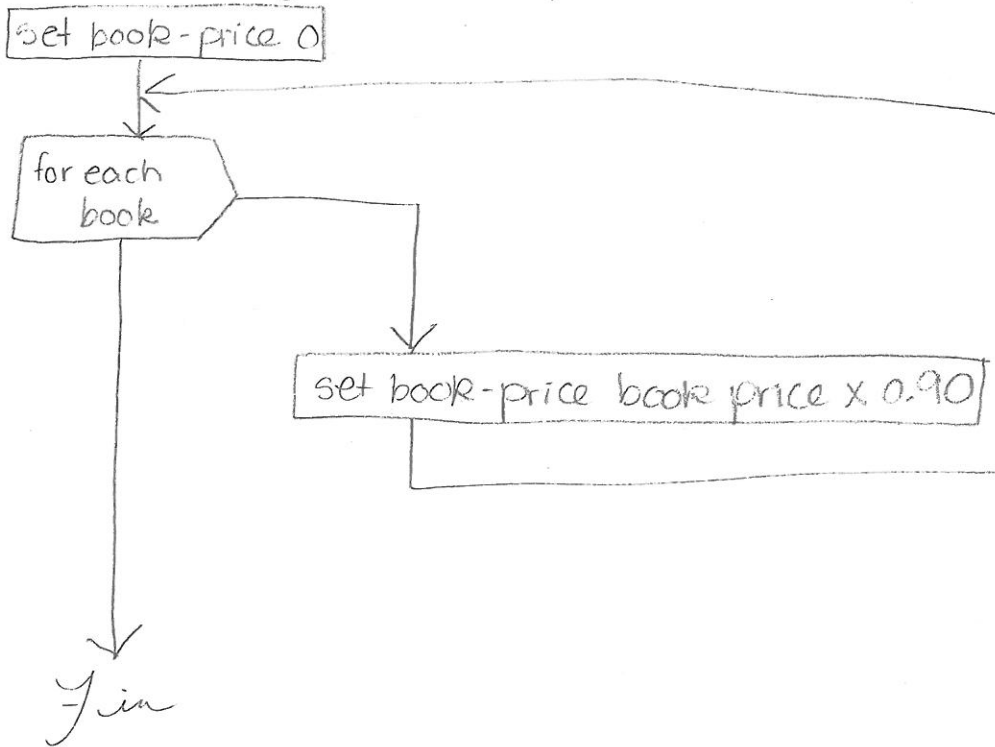
Iteration Class Work

2. We want to put our books on sale. Reduce the price of all books by 10%.

a) Write the flowchart of an algorithm to reduce the price of books.

```
┌─────────────────────┐
│ Set book-price 0    │
└─────────────────────┘
          │
          ↓
    ╱──────────╲
   │ for each   │─────────────┐
   │  book      │             │
    ╲──────────╱              │
          │                   ↓
          │    ┌──────────────────────────────────────┐
          │    │ set book-price book price x 0.90      │
          │    └──────────────────────────────────────┘
          ↓
        Fin
```

b) Write the code-like form of this algorithm.

For each book [
    set book-price book-price x 0.90
]

Iteration Class Work

Cohort: _____5_____

An abstraction of a book used by a book retailer has three properties: Title, Author, and Price. Using this abstraction some books in the retailer's inventory are shown below. Use this example data to help create and test the algorithms developed below.

In developing the code-like form of the algorithm use

  for each book [*statements*]

to represent a "for each" iteration that performs the *statements* for each book.

Title	Author	Price
"Harry Potter: Deathly Hallows"	J K Rowling	$10
"The Hunger Games"	Suzanne Collins	$10
"War and Peace"	Leo Tolstoy	$20
"Romeo and Juliette"	William Shakespeare	$5
"Fahrenheit 451"	Ray Bradbury	$6
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"The Hobbit"	J R. Tolkein	$7
"Computational Thinking"	Dennis Kafura	$0
"Oh The Places You'll Go"	Dr. Seuss	$3
"Mother Goose Rhymes"	Mother Goose	$5
"The Odyssey"	Homer	$8
"Introduction to Chemistry"	Bill Billington	$147
"Treasure Island"	Robert Louis Stevenson	$5
"The Chronicles of Narnia"	C.S. Lewis	$6

Cohort: _____5_____

2. We want to put our books on sale. Reduce the price of all books by 10%.

a) Write the flowchart of an algorithm to reduce the price of books.

For Each
Book

next price

no
more
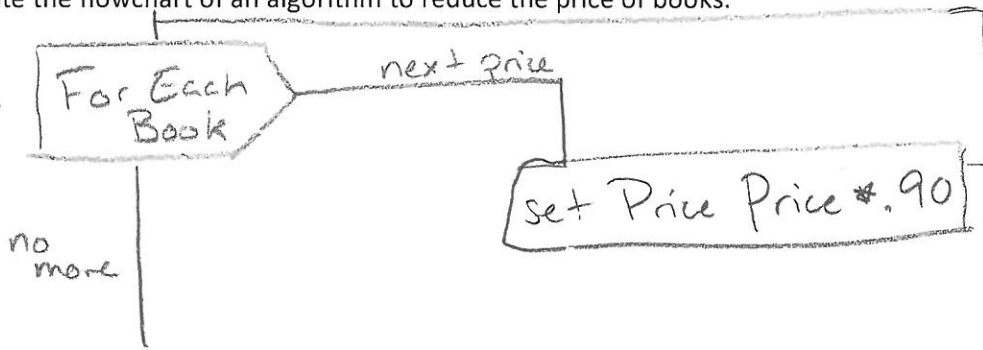
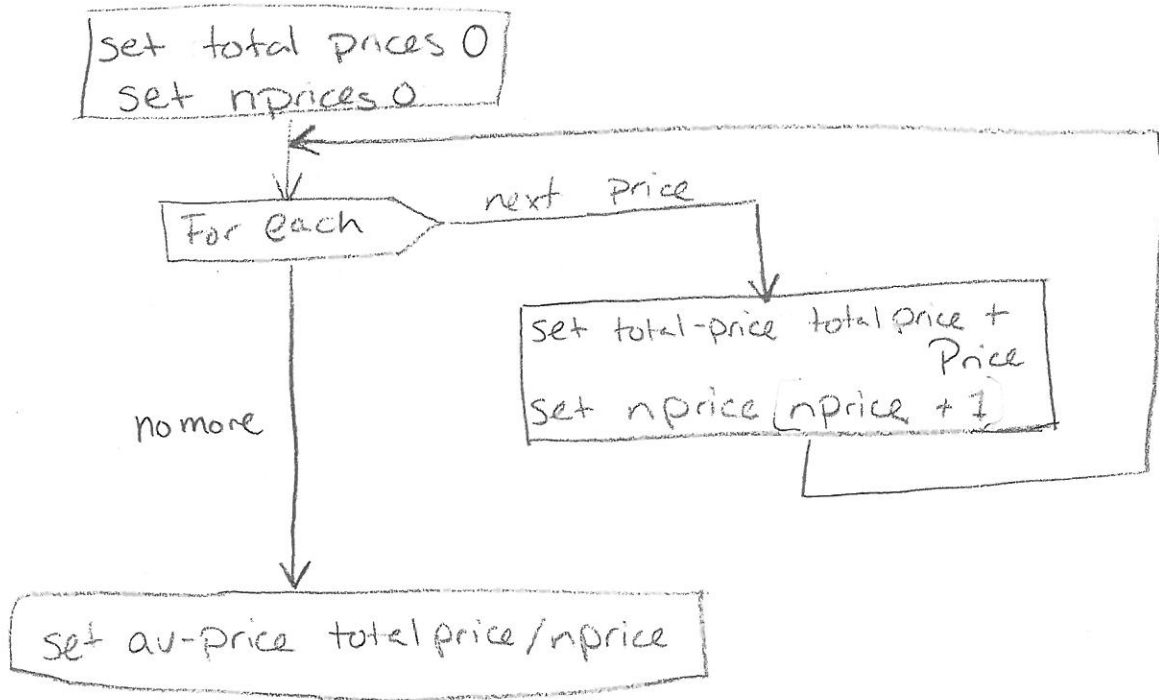set Price Price * .90

b) Write the code-like form of this algorithm.

For Each Book [

    set Price Price*.90

]

Iteration Class Work

1. We are doing inventory. What's the average price of our books?

a) Write the flowchart of an algorithm to find the average price of books.

```
set total prices 0
set nprices 0

For each  ─── next Price ───┐
                            │
                            ▼
no more          set total-price total price +
  │                                      Price
  │              set nprice (nprice + 1)
  ▼
set av-price total price/nprice
```

b) Write the code-like form of this algorithm.

```
Set total-price 0
Set nprice 0

For Each [
    Book  set total-price total price + price
          set n price nprice + 1
       ]

Set av-price total price/nprice
```

Iteration Class Work

Cohort: _____ *l* _____

An abstraction of a book used by a book retailer has three properties: Title, Author, and Price. Using this abstraction some books in the retailer's inventory are shown below. Use this example data to help create and test the algorithms developed below.

In developing the code-like form of the algorithm use

  for each book [*statements*]

to represent a "for each" iteration that performs the *statements* for each book.

Title	Author	Price
"Harry Potter: Deathly Hallows"	J K Rowling	$10
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"Romeo and Juliette"	William Shakespeare	$5
"Fahrenheit 451"	Ray Bradbury	$6
"Dracula"	Bram Stoker	$4
"The Lord of the Rings"	J R Tolkein	$30
"The Hobbit"	J R. Tolkein	$7
"Computational Thinking"	Dennis Kafura	$0
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"Mother Goose Rhymes"	Mother Goose	$5
"The Odyssey"	Homer	$8
"Introduction to Chemistry"	Bill Billington	$147
"Treasure Island"	Robert Louis Stevenson	$5
"The Chronicles of Narnia"	C.S. Lewis	$6

Iteration Class Work

Cohort: _____ *U* _____

2. We want to put our books on sale. Reduce the price of all books by 10%.

a) Write the flowchart of an algorithm to reduce the price of books.

For each book

set price price − (price * .1)

no more books
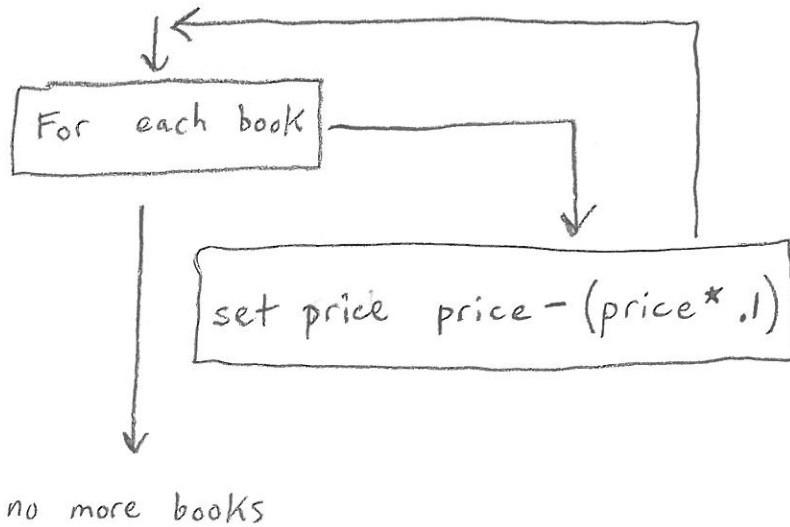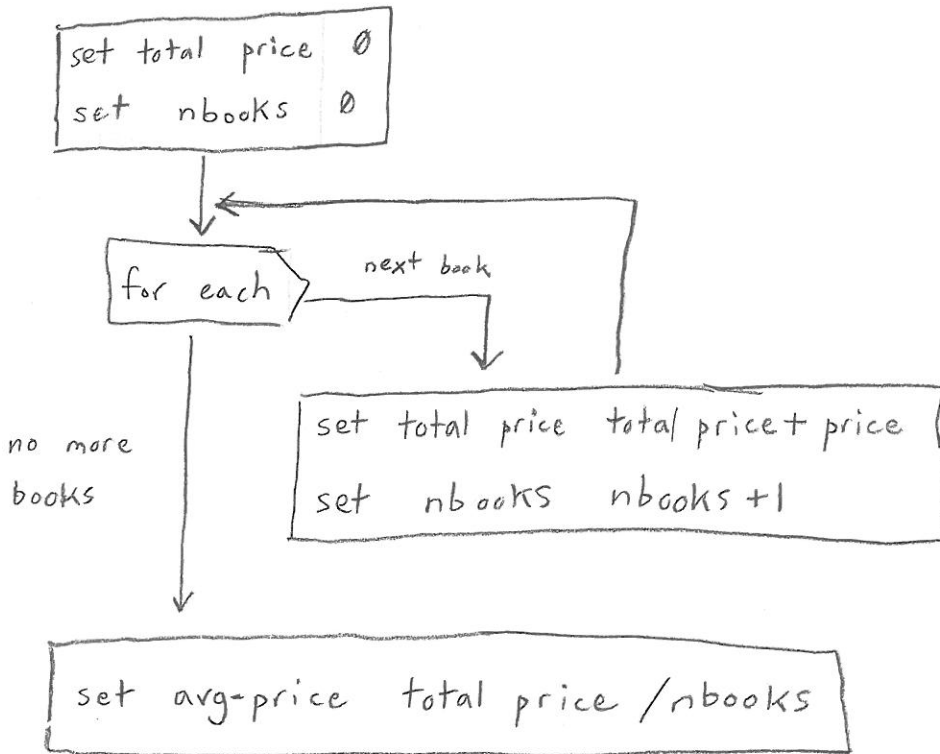
b) Write the code-like form of this algorithm.

For each book [
    set price price − (price*.1)]

Iteration Class Work

Cohort: _____ 6 _____

1. We are doing inventory. What's the average price of our books?

a) Write the flowchart of an algorithm to find the average price of books.


```
set total price  0
set nbooks  0
```

for each → next book

no more books

```
set total price  total price + price
set nbooks  nbooks + 1
```

```
set avg-price  total price / nbooks
```

b) Write the code-like form of this algorithm.

```
Set total price 0
Set nbooks 0
For each book [
  Set total price + price
  Set nbooks nbooks + 1]
Set avg-price total price/nbooks
```

Iteration Class Work

Cohort: _____7_____

An abstraction of a book used by a book retailer has three properties: Title, Author, and Price. Using this abstraction some books in the retailer's inventory are shown below. Use this example data to help create and test the algorithms developed below.

In developing the code-like form of the algorithm use

   for each book [*statements*]

to represent a "for each" iteration that performs the *statements* for each book.
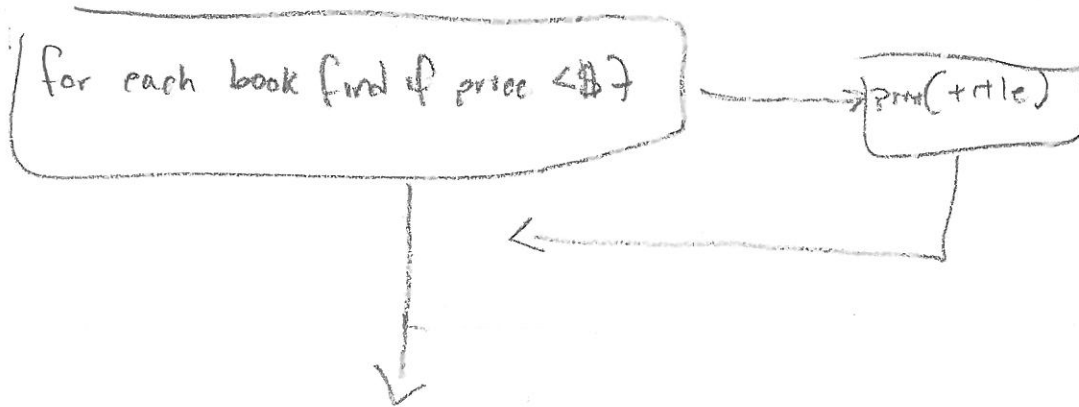
Title	Author	Price
"Harry Potter: Deathly Hallows"	J K Rowling	$10
"The Hunger Games"	Suzanne Collins	$10
"War and Peace"	Leo Tolstoy	$20
"Romeo and Juliette"	William Shakespeare	$5
"Fahrenheit 451"	Ray Bradbury	$6
"Dracula"	Bram Stoker	$4
"The Lord of the Rings"	J R Tolkein	$30
"The Hobbit"	J R. Tolkein	$7
"Computational Thinking"	Dennis Kafura	$0
"Oh The Places You'll Go"	Dr. Seuss	$3
"Mother Goose Rhymes"	Mother Goose	$5
"The Odyssey"	Homer	$8
"Introduction to Chemistry"	Bill Billington	$147
"Treasure Island"	Robert Louis Stevenson	$5
"The Chronicles of Narnia"	C.S. Lewis	$6

Iteration Class Work

2. We want to know all of our cheap books. Output any books with a price below $7.

a) Write the flowchart of an algorithm to find the cheap books. When you find a cheap book use "print(Title)" to output the current book's title.

for each book find if price <$7 - - - → prin(title)
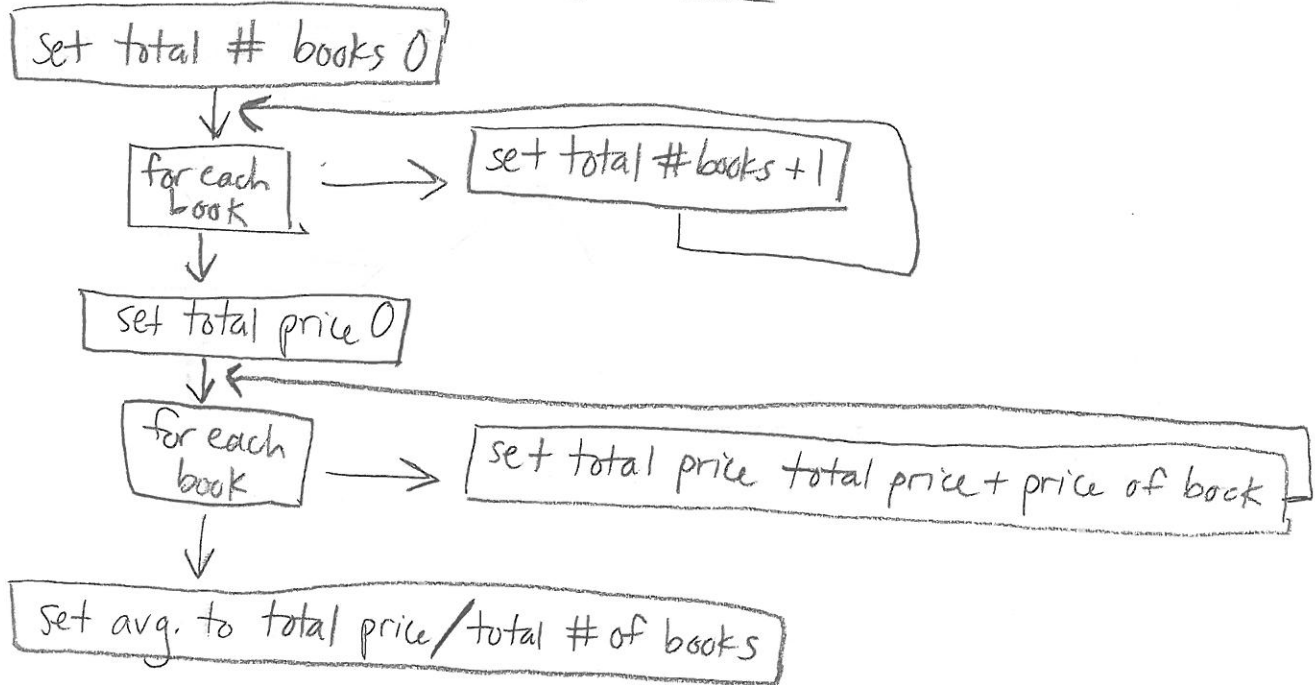
b) Write the code-like form of this algorithm.

```
for each [
     find if price <$7]
        print( Title )]
```

3

Iteration Class Work

1. We are doing inventory. What's the average price of our books?

a) Write the flowchart of an algorithm to find the average price of books.

b) Write the code-like form of this algorithm.

```
SET TOTAL #BOOKS 0
   FOREACH BOOK [
   Set total #books +1
   ]

SET total-price 0
   FOREACH BOOK [
Set Total price totalprice + price of book
   ]
   SET avg to total Price / Total #of books
   ]
```

♡, 7