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CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

Name:	
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Umail Address:	@ umail.ucsb.edu

- Please write your name above AND AT THE TOP OF EVERY PAGE
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Exam #201 Page: 1 Name: ___

- Each exam is numbered (e.g. Exam #137).
- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam #201 Page: 2 Name:
1.	Please perform the following number conversions.
	a. (2 pts) Convert 010 001 from binary to octal
	b. (2 pts) Convert 0101 0000 from binary to base 10
	c. (2 pts) Convert 1010 1100 1101 1101 from base 2 to hexadecima
	d. (2 pts) Convert 1000 1101 from base 2 to decimal
	e. (2 pts) Convert 48 from base 10 to base 2
	f. (2 pts) Convert 0100 0001 1010 0111 from base 2 to hexadecima
	g. (2 pts) Convert 0011 0001 from base 2 to decimal
	h. (2 pts) Convert 110 110 110 from binary to base 8
	i. (2 pts) Convert 110 101 011 from base 2 to base 8

j. (2 pts) Convert 1000 0100 from binary to base 10

	Exam #201 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt date banana mango
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[0][2]?
	c. (2 pts) What is the value of argv[2][0]?
	d. (2 pts) What is the value of argv[1][0]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int r;
  Node s;
  double t;
  char w;
  int *x;
  Node *y;
  double *z;
  char *a;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) argv[1][2]
```

- b. (2 pts) &y
- c. (2 pts) y
- d. (2 pts) argv[0]
- e. (2 pts) y->next->next
- f. (2 pts) s
- g. (2 pts) argc
- h. (2 pts) y->next
- i. (2 pts) y->data
- j. (2 pts) *x
- k. (2 pts) &t

Exam #201 Page: 5 Name:	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #201 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #201 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #201 Page: 8 Name:	

End of Exam

total points=100

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CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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Exam #202 Page: 1 Name: ____

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- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam #202 Page: 2 Name:
1.	Please perform the following number conversions.
	a. (2 pts) Convert 0011 1010 0100 0010 from base 2 to base 16
	b. (2 pts) Convert 001 000 011 from base 2 to octal
	c. (2 pts) Convert 227 from base 10 to base 2
	d. (2 pts) Convert 233 from decimal to binary
	e. (2 pts) Convert 1000 0110 from base 2 to base 10
	f. (2 pts) Convert 011 101 000 from base 2 to base 8
	g. (2 pts) Convert 0011 0100 0000 0010 from binary to hexadecimal
	h. (2 pts) Convert 010 001 000 from base 2 to base 8
	i. (2 pts) Convert 011 101 111 from binary to octal

j. (2 pts) Convert 1011 0000 from binary to decimal

	Exam #202 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt guava cherry
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[2][4]?
	c. (2 pts) What is the value of argv[1][4]?
	d. (2 pts) What is the value of argv[0][5]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  double s;
  Node t;
  int w;
  char x;
  double *y;
  Node *z;
  int *a;
  char *b;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) y
```

b. (2 pts) z->data

c. (2 pts) w

d. (2 pts) argv[1][2]

e. (2 pts) argc

f. (2 pts) z->next->next

g. (2 pts) &a

h. (2 pts) z->next

i. (2 pts) argv[0]

j. (2 pts) &s

k. (2 pts) *y

Exam #202 Page: 5 Name: _	
_	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #202 Page: 7	Name:		

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #202 Page: 8 Name:	

End of Exam

total points=100

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CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

Name:	
Umail Address:	

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Exam #203 Page: 1 Name: ____

- Each exam is numbered (e.g. Exam #137).
- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

1.	Please perform the following number conversions.
	a. (2 pts) Convert 0111 1111 from binary to decimal
	b. (2 pts) Convert dc09 from hexadecimal to base 2
	c. (2 pts) Convert 110 100 010 from binary to octal
	d. (2 pts) Convert 117 from decimal to base 2
	e. (2 pts) Convert 0110 1010 0010 0001 from base 2 to base 16
	f. (2 pts) Convert 3 from octal to base 2
	g. (2 pts) Convert 1101 1101 1111 0011 from base 2 to hexadecima
	h. (2 pts) Convert cc17 from base 16 to base 2
	i. (2 pts) Convert 010 000 011 from base 2 to base 8

j. (2 pts) Convert 0100 1100 from base 2 to decimal

Exam #203 Page: 2 Name: _____

	Exam #203 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt cherry lime apple mango
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[1][5]?
	c. (2 pts) What is the value of argv[2][1]?
	d. (2 pts) What is the value of argv[0][1]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int z;
  double a;
  Node b;
  char c;
  int *d;
  double *e;
  Node *f;
  char *g;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) f->data
```

b. (2 pts) &c

c. (2 pts) f->next->next

d. (2 pts) z

e. (2 pts) *e

f. (2 pts) argc

g. (2 pts) f->next

h. (2 pts) &d

i. (2 pts) argv[0]

j. (2 pts) g

k. (2 pts) argv[1][2]

Exam #203 Page: 5 Name: _	
-	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #203 Page: 7 Name	:

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result

cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #203 Page: 8 Name:	

End of Exam

total points=100

	_	_	_	_	_				_	_	_	_			_	_	_	_		_	_	_	_	_		_				7
Color in first initial:	А	В	С	D	Е	F	G	Н	l	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
Color in last initial:	Α	В	С	D	Е	F	G	Н	ı	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z				

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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Exam #204 Page: 1 Name: ____

- Each exam is numbered (e.g. Exam #137).
- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam #204 Page: 2 Name:
1.	Please perform the following number conversions. a. (2 pts) Convert 1101 0111 from base 2 to decimal
	b. (2 pts) Convert 011 111 101 from binary to octal
	c. (2 pts) Convert 0111 0110 from base 2 to base 10
	d. (2 pts) Convert 001 100 010 from base 2 to base 8
	e. (2 pts) Convert 1101 1010 from base 2 to decimal
	f. (2 pts) Convert 1111 from binary to base 10
	g. (2 pts) Convert 0010 1111 from binary to base 10
	h (2 pts) Canyart 7280 from base 16 to hinary

i. (2 pts) Convert 001 101 000 from binary to octal

j. (2 pts) Convert 010 110 000 from binary to base 8

	Exam #204 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt lemon apple kiwi
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[1][1]?
	c. (2 pts) What is the value of argv[0][4]?
	d. (2 pts) What is the value of argv[2][0]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  Node q;
  int r;
  double s;
  char t;
  Node *w;
  int *x;
  double *y;
  char *z;

  return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) &z
```

b. (2 pts) argc

c. (2 pts) *x

d. (2 pts) w->next->next

e. (2 pts) argv[0]

f. (2 pts) w->data

g. (2 pts) t

h. (2 pts) &t

i. (2 pts) w->next

j. (2 pts) argv[1][2]

k. (2 pts) x

Exam #204 Page: 5 Name:	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #204 Page: 6 Name:	
-------------------------	--

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #204 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result

cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

End of Exam

total points=100

Color in first initial:	А	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	V	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial
Color in last initial:	Α	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z			

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Exam #205 Page: 1 Name: ____

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- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam	#205 Page: 2 Name:
1.		perform the following number conversions. (2 pts) Convert 0001 1100 0101 1101 from binary to hexadecima
	b.	(2 pts) Convert 38fd from hexadecimal to base 2
	c.	(2 pts) Convert 31 from base 8 to base 2
	d.	(2 pts) Convert 1011 1101 0100 0111 from base 2 to hexadecima
	e.	(2 pts) Convert 189 from base 10 to base 2
	f.	(2 pts) Convert 169 from decimal to base 2
	g.	(2 pts) Convert 1101 1001 from base 2 to decimal
	h.	(2 pts) Convert 111 110 100 from binary to octal
	i.	(2 pts) Convert 77 from octal to base 2

j. (2 pts) Convert 111 101 000 from base 2 to octal

	Exam #205 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt date lemon lime
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[0][6]?
	c. (2 pts) What is the value of argv[2][3]?
	d. (2 pts) What is the value of argv[1][1]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int g;
  Node h;
  double p;
  char q;
  int *r;
  Node *s;
  double *t;
  char *w;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) argv[0]
```

b. (2 pts) p

c. (2 pts) s->next->next

d. (2 pts) r

e. (2 pts) &s

f. (2 pts) &p

g. (2 pts) argc

h. (2 pts) s->next

i. (2 pts) argv[1][2]

j. (2 pts) s->data

k. (2 pts) *t

Exam #205 Page: 5 Name:	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #205 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #205 Page: 8 Name:	

End of Exam

total points=100

Color in first initial:	А	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial
Color in last initial:	А	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Τ	U	٧	W	Х	Υ	Z			

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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- Please write your name above AND AT THE TOP OF EVERY PAGE
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Exam #206 Page: 1 Name: _____

- Each exam is numbered (e.g. Exam #137).
- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

j. (2 pts) Convert 0010 0000 from base 2 to base 10

	Exam #206 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt mango date
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[2][1]?
	c. (2 pts) What is the value of argv[0][5]?
	d. (2 pts) What is the value of argv[1][4]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  double h;
  Node p;
  int q;
  char r;
  double *s;
  Node *t;
  int *w;
  char *x;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) t->data
```

- b. (2 pts) &x
- c. (2 pts) t->next->next
- d. (2 pts) argc
- e. (2 pts) t->next
- f. (2 pts) r
- g. (2 pts) argv[1][2]
- h. (2 pts) s
- i. (2 pts) &p
- j. (2 pts) *w
- k. (2 pts) argv[0]

Exam #206 Page: 5 Name:	
-	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #206 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #206 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result

cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #206 Page: 8 Name:	

End of Exam

total points=100

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CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

Name:	
Umail Address:	

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Exam #207 Page: 1 Name: ____

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- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam #20/ Page: 2 Name:
1.	Please perform the following number conversions.
	a. (2 pts) Convert 44 from base 8 to base 2
	b. (2 pts) Convert 61 from base 8 to base 2
	c. (2 pts) Convert 1000 1000 from binary to decimal
	d. (2 pts) Convert 51 from base 8 to binary
	e. (2 pts) Convert 75 from base 8 to binary
	f. (2 pts) Convert 117 from decimal to base 2
	g. (2 pts) Convert 1000 0101 from base 2 to base 10
	h. (2 pts) Convert ead9 from base 16 to base 2
	i. (2 pts) Convert 011 010 011 from base 2 to base 8

j. (2 pts) Convert 101 111 000 from binary to base 8

e the main function in the program runIt.cpp starts with: ain(int argc, char *argv[]) {
ain(int argc char *argv[]) {
arin(ine dige, endi digv[]) (
, suppose this program is invoked with the following command line:
It date lime kiwi cherry
(2 pts) What is the value of argc in this case?
(2 pts) What is the value of argv[2][1]?
(2 pts) What is the value of argv[1][2]?
(2 pts) What is the value of argv[0][4]?
(

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  double e;
  int f;
  Node g;
  char h;
  double *p;
  int *q;
  Node *r;
  char *s;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) &q
```

b. (2 pts) &e

c. (2 pts) *s

d. (2 pts) r->next->next

e. (2 pts) f

f. (2 pts) r->next

g. (2 pts) argv[1][2]

h. (2 pts) argc

i. (2 pts) s

j. (2 pts) argv[0]

k. (2 pts) r->data

Exam #207 Page: 5 Name:	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #207 Page: 7 Name:	:

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #207 Page: 8 Name:	

End of Exam

total points=100

Color in first initial:	А	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	V	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial
Color in last initial:	Α	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z			

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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Exam #208 Page: 1 Name: _____

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- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam #200 Page: 2 Name:
1.	Please perform the following number conversions.
	a. (2 pts) Convert 0100 1111 0001 0001 from binary to hexadecimal
	b. (2 pts) Convert 10 from octal to binary
	c. (2 pts) Convert 34 from octal to base 2
	d. (2 pts) Convert 227 from decimal to base 2
	e. (2 pts) Convert 1111 1110 0101 1011 from base 2 to base 16
	f. (2 pts) Convert 0011 1011 from binary to base 10
	g. (2 pts) Convert 1001 1001 from base 2 to decimal
	h. (2 pts) Convert 100 110 110 from base 2 to octal
	i. (2 pts) Convert 25 from base 10 to base 2

j. (2 pts) Convert 0100 1010 from binary to decimal

	Exam #208 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt guava mango date
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[2][2]?
	c. (2 pts) What is the value of argv[1][4]?
	d. (2 pts) What is the value of argv[0][3]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int s;
  Node t;
  double w;
  char x;
  int *y;
  Node *z;
  double *a;
  char *b;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) &b
```

b. (2 pts) argc

c. (2 pts) z->next

d. (2 pts) y

e. (2 pts) *b

f. (2 pts) argv[1][2]

g. (2 pts) &x

h. (2 pts) z->data

i. (2 pts) z->next->next

j. (2 pts) s

k. (2 pts) argv[0]

Exam #208 Page: 5 Name:	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #208 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #208 Page: 8 Name:	

End of Exam

total points=100

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Color in first initial:	А	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
Color in last initial:	Α	В	С	D	E	F	G	Н	ı	J	ĸ		М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z				

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

Name:	
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Umail Address:	@ umail.ucsb.edu

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Exam #209 Page: 1 Name: ____

- Each exam is numbered (e.g. Exam #137).
- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam	#209 Page: 2 Name:
1.	Please	perform the following number conversions.
	a.	(2 pts) Convert 1001 0011 from binary to base 10
	b.	(2 pts) Convert 110 111 001 from binary to base 8
	c.	(2 pts) Convert 27 from base 8 to base 2
	d.	(2 pts) Convert 0110 1111 from binary to decimal
	e.	(2 pts) Convert 70 from base 8 to binary
	f.	(2 pts) Convert 110 101 001 from binary to octal
	g.	(2 pts) Convert 67 from decimal to binary
	h.	(2 pts) Convert 001 000 101 from base 2 to octal
	i.	(2 pts) Convert 227 from decimal to binary

j. (2 pts) Convert 71 from base 8 to binary

	Exam #209 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt kiwi fig
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[2][0]?
	c. (2 pts) What is the value of argv[0][5]?
	d. (2 pts) What is the value of argv[1][2]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  Node h;
  double p;
  int q;
  char r;
  Node *s;
  double *t;
  int *w;
  char *x;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) x
```

b. (2 pts) argv[1][2]

c. (2 pts) &t

d. (2 pts) argv[0]

e. (2 pts) s->next->next

f. (2 pts) q

g. (2 pts) s->next

h. (2 pts) argc

i. (2 pts) *t

j. (2 pts) &r

k. (2 pts) s->data

Exam #209 Page: 5 Name: _	
-	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #209 P	age: 7 Name:	:

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

End of Exam

total points=100

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Color in	Α	В	С	D	Е	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Χ		Z				

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- Be sure you turn in every page of this exam.

Exam #210 Page: 1 Name: ____

- Each exam is numbered (e.g. Exam #137).
- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

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j. (2 pts) Convert 18 from decimal to binary

	Exam #210 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt banana fig
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[2][1]?
	c. (2 pts) What is the value of argv[1][0]?
	d. (2 pts) What is the value of argv[0][2]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  double a;
  Node b;
  int c;
  char d;
  double *e;
  Node *f;
  int *g;
  char *h;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) &g
```

- b. (2 pts) f->next
- c. (2 pts) argv[0]
- d. (2 pts) argc
- e. (2 pts) g
- f. (2 pts) *e
- g. (2 pts) &b
- h. (2 pts) argv[1][2]
- i. (2 pts) d
- j. (2 pts) f->data
- k. (2 pts) f->next->next

Exam #210 Page: 5 Name:	
8	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #210 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #210 Page: 8 Name:	

End of Exam

total points=100

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CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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- Please write your name above AND AT THE TOP OF EVERY PAGE
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Exam #211 Page: 1 Name:

- Each exam is numbered (e.g. Exam #137).
- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

j. (2 pts) Convert 174 from base 10 to binary

	Exam #211 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt guava fig kiwi cherry
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[1][0]?
	c. (2 pts) What is the value of argv[2][1]?
	d. (2 pts) What is the value of argv[0][6]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int x;
  double y;
  Node z;
  char a;
  int *b;
  double *c;
  Node *d;
  char *e;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) d->next->next
```

```
b. (2 pts) &x
```

c. (2 pts) y

d. (2 pts) c

e. (2 pts) argv[0]

f. (2 pts) argc

g. (2 pts) d->data

h. (2 pts) *d

i. (2 pts) argv[1][2]

j. (2 pts) d->next

k. (2 pts) &b

Exam #211 Page: 5 Name:	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #211 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #211 Page: 7 Name: j	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #211 Page: 8 Name:	
8	

End of Exam

total points=100

Color in first initial:	Α	В	С	D	Е	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	V	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
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CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

Name:	
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Exam #212 Page: 1 Name: ___

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- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
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- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

j. (2 pts) Convert 56 from base 8 to base 2

	Exam #212 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt cherry banana lemon
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[1][2]?
	c. (2 pts) What is the value of argv[0][6]?
	d. (2 pts) What is the value of argv[2][4]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  Node h;
  int p;
  double q;
  char r;
  Node *s;
  int *t;
  double *w;
  char *x;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) s
```

b. (2 pts) argv[1][2]

c. (2 pts) s->data

d. (2 pts) argc

e. (2 pts) p

f. (2 pts) s->next->next

g. (2 pts) argv[0]

h. (2 pts) &x

i. (2 pts) &h

j. (2 pts) *t

k. (2 pts) s->next

Exam #212 Page: 5 Name:	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #212 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #212 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result

cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #212 Page: 8 Name:	

End of Exam

total points=100

Color in first initial:	Α	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	V	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
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CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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Umail Address:	@ umail.ucsb.edu

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Exam #213 Page: 1 Name: ___

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- Please write your name on your notes sheet

j. (2 pts) Convert 0101 0110 0010 0110 from binary to base 16

	Exam #213 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt fig grape
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[0][5]?
	c. (2 pts) What is the value of argv[2][0]?
	d. (2 pts) What is the value of argv[1][2]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  Node e;
  double f;
  int g;
  char h;
  Node *p;
  double *q;
  int *r;
  char *s;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) p->next
```

- b. (2 pts) &h
- c. (2 pts) p->data
- d. (2 pts) argc
- e. (2 pts) p->next->next
- f. (2 pts) argv[0]
- g. (2 pts) &q
- h. (2 pts) argv[1][2]
- i. (2 pts) s
- j. (2 pts) *s
- k. (2 pts) h

Exam #213 Page: 5 Name: _		
-		

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #213 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #213 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #213 Page: 8 Name:	

End of Exam

total points=100

Color in first initial:	Α	В	С	D	Е	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	V	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
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CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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Umail Address:	@ umail.ucsb.edu

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Exam #214 Page: 1 Name: ___

- Each exam is numbered (e.g. Exam #137).
- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
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- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam #2	214 Page: 2 Name:
1.	Please po	erform the following number conversions.
	a. (2	2 pts) Convert d8d0 from base 16 to base 2
	b. (2	2 pts) Convert 96b0 from hexadecimal to binary
	c. (2	2 pts) Convert 0100 1101 1011 0101 from binary to base 16
	d. (2	2 pts) Convert 1111 1011 from base 2 to base 10
	e. (2	2 pts) Convert 1100 0100 from base 2 to decimal
	f. (2	2 pts) Convert 33 from base 8 to binary
	g. (2	2 pts) Convert 237 from base 10 to binary
	h. (2	2 pts) Convert aaa0 from base 16 to binary
	i. (2	2 pts) Convert 1010 1101 from base 2 to base 10

j. (2 pts) Convert 40 from base 8 to binary

	Exam #214 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt date lime guava kiwi
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[0][5]?
	c. (2 pts) What is the value of argv[2][1]?
	d. (2 pts) What is the value of argv[1][2]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  double e;
  int f;
  Node g;
  char h;
  double *p;
  int *q;
  Node *r;
  char *s;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) argc
```

- b. (2 pts) e
- c. (2 pts) r->next
- d. (2 pts) *r
- e. (2 pts) argv[1][2]
- f. (2 pts) argv[0]
- g. (2 pts) r->data
- h. (2 pts) &g
- i. (2 pts) &s
- j. (2 pts) r->next->next
- k. (2 pts) r

Exam #214 Page: 5 Name:	
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4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #214 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #214 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #214 Page: 8 Name:	
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End of Exam

total points=100

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Color in	A	В	С	D	F	F	G	Н		J	ĸ	П	М	N	0	Р	O	R	S	Т	IJ	V	w	Ιχ	Υ	7				

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Exam #215 Page: 1 Name: ____

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- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam	#215 Page: 2 Name:
1.	Please	perform the following number conversions.
	a.	(2 pts) Convert 111 011 from base 2 to octal
	b.	(2 pts) Convert 0101 0000 1101 1001 from base 2 to base 16
	c.	(2 pts) Convert 0011 1011 1001 0101 from binary to hexadecimal
	d.	(2 pts) Convert 41 from base 8 to binary
	e.	(2 pts) Convert a83e from base 16 to base 2
	f.	(2 pts) Convert 1000 1010 1011 from base 2 to base 16
	g.	(2 pts) Convert 151 from decimal to binary
	h.	(2 pts) Convert 0011 0010 0101 0000 from binary to hexadecimal
	i.	(2 pts) Convert 119 from decimal to binary

j. (2 pts) Convert 7 from octal to base 2

	Exam #215 Page: 3 Name:									
2.	Assume the main function in the program runIt.cpp starts with:									
	<pre>int main(int argc, char *argv[]) {</pre>									
	Further, suppose this program is invoked with the following command line:									
	./runIt mango banana guava apple									
	a. (2 pts) What is the value of argc in this case?									
	b. (2 pts) What is the value of argv[2][2]?									
	c. (2 pts) What is the value of argv[1][0]?									
	d. (2 pts) What is the value of argv[0][2]?									

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  double r;
  int s;
  Node t;
  char w;
  double *x;
  int *y;
  Node *z;
  char *a;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) y
```

b. (2 pts) z->data

c. (2 pts) argv[1][2]

d. (2 pts) argc

e. (2 pts) t

f. (2 pts) &s

g. (2 pts) z->next

h. (2 pts) argv[0]

i. (2 pts) z->next->next

j. (2 pts) &y

k. (2 pts) *x

n #215 Page: 5 Name:		
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4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #215 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #215 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #215 Page: 8 Name:	

End of Exam

total points=100

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Color in first initial:	А	В	С	D	Е	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Τ	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
Color in	Α	В	С	D	Е	F	G	Н	I	J	ĸ	L	М	N	0	Р	Q	R	S	Т	U	V	W	Х	Υ	z				

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

Name:	
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Exam #216 Page: 1 Name: ____

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- These sheets will be collected with the exam, and might not be returned
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	Exam #216 Page: 2 Name:
1.	Please perform the following number conversions.
	a. (2 pts) Convert 011 101 100 from base 2 to octal
	b. (2 pts) Convert 243 from base 10 to base 2
	c. (2 pts) Convert e0f7 from hexadecimal to base 2
	d. (2 pts) Convert 4311 from base 16 to binary
	e. (2 pts) Convert 6 from base 8 to binary
	f. (2 pts) Convert 9 from base 10 to base 2
	g. (2 pts) Convert 1110 1000 1101 1001 from base 2 to hexadecimal
	h. (2 pts) Convert 110 110 001 from binary to base 8
	i. (2 pts) Convert 106 from base 10 to base 2

j. (2 pts) Convert 0010 1001 1110 0101 from binary to hexadecimal

	Exam #216 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt banana lemon grape
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[1][5]?
	c. (2 pts) What is the value of argv[0][4]?
	d. (2 pts) What is the value of argv[2][0]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  Node d;
  int e;
  double f;
  char g;
  Node *h;
  int *p;
  double *q;
  char *r;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) &d
```

- b. (2 pts) f
- c. (2 pts) *r
- d. (2 pts) &h
- e. (2 pts) h->next->next
- f. (2 pts) h->next
- g. (2 pts) h->data
- h. (2 pts) argc
- i. (2 pts) argv[0]
- j. (2 pts) argv[1][2]
- k. (2 pts) r

Exam #216 Page: 5 Name:	
8	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #216 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #216 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #216 Page: 8 Name:	

End of Exam

total points=100

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Color in first initial:	А	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
Color in	A	B	С	П	F	F	G	Н		Л	к	П	М	N	0	Р	O	R	s	Т	U	V	w	X	γ	7				

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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- Please write your name on your notes sheet

	cxam	#217 Page: 2 Name:
1.	Please	perform the following number conversions.
	a.	(2 pts) Convert baeb from base 16 to binary
	b.	(2 pts) Convert 53 from base 8 to binary
	c.	(2 pts) Convert ced7 from hexadecimal to base 2
	d.	(2 pts) Convert cefb from base 16 to base 2
	e.	(2 pts) Convert fc02 from base 16 to base 2
	f.	(2 pts) Convert 1010 0011 from binary to base 10
	g.	(2 pts) Convert 44 from octal to binary
	h.	(2 pts) Convert 6072 from hexadecimal to base 2
	i.	(2 pts) Convert 0011 0100 from binary to decimal

j. (2 pts) Convert 1100 0101 1100 1111 from binary to hexadecimal

	Exam #217 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt guava lemon
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[0][3]?
	c. (2 pts) What is the value of argv[1][1]?
	d. (2 pts) What is the value of argv[2][0]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  double a;
  Node b;
  int c;
  char d;
  double *e;
  Node *f;
  int *g;
  char *h;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) f->next
```

- b. (2 pts) argv[1][2]
- c. (2 pts) argv[0]
- d. (2 pts) argc
- e. (2 pts) g
- f. (2 pts) a
- g. (2 pts) &g
- h. (2 pts) &a
- i. (2 pts) f->next->next
- j. (2 pts) f->data
- k. (2 pts) *f

-	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #217 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #217 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #217 Page: 8 Name:	
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End of Exam

total points=100

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CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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	Exam	#218 Page: 2 Name:
1.		perform the following number conversions. (2 pts) Convert 1110 1100 from binary to base 10
		(2 pts) Convert 0111 1111 0101 0011 from binary to base 16
	c.	(2 pts) Convert 001 010 from binary to octal
	d.	(2 pts) Convert 0010 1011 0011 1101 from base 2 to hexadecimal
	e.	(2 pts) Convert 82 from base 10 to base 2
	f.	(2 pts) Convert 1101 0110 0100 0010 from binary to hexadecimal
	g.	(2 pts) Convert 1001 0100 1111 1000 from base 2 to base 16
	h.	(2 pts) Convert c961 from base 16 to base 2
	i.	(2 pts) Convert d60e from base 16 to base 2

j. (2 pts) Convert 1111 0010 0001 0000 from binary to base 16

	Exam #218 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt cherry grape lemon fig
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[2][2]?
	c. (2 pts) What is the value of argv[0][5]?
	d. (2 pts) What is the value of argv[1][0]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int b;
  double c;
  Node d;
  char e;
  int *f;
  double *g;
  Node *h;
  char *p;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) g
```

b. (2 pts) &d

c. (2 pts) c

d. (2 pts) argc

e. (2 pts) h->next->next

f. (2 pts) argv[1][2]

g. (2 pts) h->data

h. (2 pts) *f

i. (2 pts) h->next

j. (2 pts) argv[0]

k. (2 pts) &f

Exam #218 Page: 5 Name: _	
-	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #218 Page: 6 Name:	
- C	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #218 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result

cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #218 Page: 8 Name:	·	

End of Exam

total points=100

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Color in first initial:	А	В	С	D	Е	F	G	Н	I	J	K	L	M	N	0	Р	Q	R	S	Τ	U	۷	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
Color in	Α	В	С	D	Е	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Χ		Z				

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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- Please write your name on your notes sheet

	Exam #219 Page: 2 Name:
1.	Please perform the following number conversions.
	a. (2 pts) Convert 0011 0001 0010 1100 from binary to base 16
	b. (2 pts) Convert 0011 1001 from base 2 to decimal
	c. (2 pts) Convert 74 from base 8 to binary
	d. (2 pts) Convert 55 from base 8 to base 2
	e. (2 pts) Convert 356b from base 16 to base 2
	f. (2 pts) Convert 701e from base 16 to binary
	g. (2 pts) Convert 0011 1110 1110 1001 from binary to hexadecimal
	h. (2 pts) Convert 0101 0001 0001 0010 from base 2 to base 16
	i. (2 pts) Convert 1010 0000 from binary to decimal

j. (2 pts) Convert 1000 1101 1111 1010 from base 2 to base 16

	Exam #219 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt mango grape lemon date
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[2][3]?
	c. (2 pts) What is the value of argv[1][3]?
	d. (2 pts) What is the value of argv[0][6]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int x;
  double y;
  Node z;
  char a;
  int *b;
  double *c;
  Node *d;
  char *e;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) &y
```

- b. (2 pts) x
- c. (2 pts) d->next->next
- d. (2 pts) argc
- e. (2 pts) argv[0]
- f. (2 pts) *d
- g. (2 pts) &d
- h. (2 pts) b
- i. (2 pts) d->data
- j. (2 pts) argv[1][2]
- k. (2 pts) d->next

Exam #219 Page: 5 Name:	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #219 Page: 6 Name:	
-------------------------	--

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #219 Page: 7 N	Name:

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result

cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #219 Page: 8 Name:	

End of Exam

total points=100

Color in first initial:	А	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Τ	U	٧	W	X	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial
Color in last initial:	Α	В	С	D	Ε	F	G	Н	I	J	K	L	M	N	0	Р	Q	R	S	Т	U	V	W	X	Υ	Z			

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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Exam #220 Page: 1 Name: _____

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- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
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- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam	#220 Page: 2 Name:
1.	Please	perform the following number conversions.
	a.	(2 pts) Convert 1000 1001 1000 1001 from binary to base 16
	b.	(2 pts) Convert 1101 1100 0100 1000 from base 2 to base 16
	c.	(2 pts) Convert 100 110 000 from binary to base 8
	d.	(2 pts) Convert 114 from base 10 to base 2
	e.	(2 pts) Convert 165 from base 10 to base 2
	f.	(2 pts) Convert 34 from base 8 to binary
	g.	(2 pts) Convert 1001 0000 from base 2 to base 10
	h.	(2 pts) Convert 1111 0111 from base 2 to base 10

i. (2 pts) Convert 1001 0010 from base 2 to decimal

j. (2 pts) Convert 998e from base 16 to binary

	Exam #220 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt date apple mango
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[1][0]?
	c. (2 pts) What is the value of argv[2][4]?
	d. (2 pts) What is the value of argv[0][4]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int h;
  Node p;
  double q;
  char r;
  int *s;
  Node *t;
  double *w;
  char *x;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) t->next->next
```

- b. (2 pts) argv[1][2]
- c. (2 pts) &t
- d. (2 pts) argv[0]
- e. (2 pts) *t
- f. (2 pts) t->data
- g. (2 pts) argc
- h. (2 pts) t->next
- i. (2 pts) r
- j. (2 pts) x
- k. (2 pts) &p

Exam #220 Page: 5 Name:	
-	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam	#220	Page:	7	Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #220 Page: 8 Name:	

End of Exam

total points=100

Color in first initial:	А	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
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CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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Exam #221 Page: 1 Name: ___

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- Please write your name on your notes sheet

	Exam #221 Page: 2 Name:
1.	Please perform the following number conversions.
	a. (2 pts) Convert 110 011 100 from binary to octal
	b. (2 pts) Convert 1001 0110 from base 2 to decimal
	c. (2 pts) Convert 1000 0110 0101 1001 from base 2 to hexadecimal
	d. (2 pts) Convert 1111 1110 from binary to decimal
	e. (2 pts) Convert 1000 1001 0010 1111 from base 2 to base 16
	f. (2 pts) Convert 010 110 from base 2 to base 8
	g. (2 pts) Convert 0011 1010 from binary to base 10
	h. (2 pts) Convert 7f34 from hexadecimal to base 2
	i. (2 pts) Convert 010 111 001 from base 2 to base 8

j. (2 pts) Convert 3579 from base 16 to binary

	Exam #221 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt grape banana
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[0][2]?
	c. (2 pts) What is the value of argv[2][2]?
	d. (2 pts) What is the value of argv[1][3]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  Node w;
  double x;
  int y;
  char z;
  Node *a;
  double *b;
  int *c;
  char *d;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) argc
```

- b. (2 pts) a->next
- c. (2 pts) a->data
- d. (2 pts) c
- e. (2 pts) a->next->next
- f. (2 pts) argv[1][2]
- g. (2 pts) &w
- h. (2 pts) *d
- i. (2 pts) x
- j. (2 pts) &d
- k. (2 pts) argv[0]

Exam #221 Page: 5 Name: _	
-	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #221 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #221 Page: 7 Name: j	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #221 Page: 8 Name:	
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End of Exam

total points=100

Color in first initial:	Α	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	V	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial
Color in last initial:	Α	В	С	D	Ε	F	G	Н	Ι	J	K	L	М	N	0	Р	Q	R	S	Т	U	V	W	Х	Υ	Z			

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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Exam #222 Page: 1 Name: ____

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- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam #222 Page: 2 Name:
1.	Please perform the following number conversions.
	a. (2 pts) Convert 77 from base 8 to binary
	b. (2 pts) Convert 011 001 111 from binary to base 8
	c. (2 pts) Convert 1011 1100 from base 2 to base 10
	d. (2 pts) Convert 90 from base 10 to binary
	e. (2 pts) Convert 67 from base 8 to base 2
	f. (2 pts) Convert 001 111 011 from binary to octal
	g. (2 pts) Convert 17 from base 8 to binary
	h. (2 pts) Convert e823 from hexadecimal to base 2
	i. (2 pts) Convert 254 from base 10 to binary

j. (2 pts) Convert 0110 0001 1011 1010 from base 2 to hexadecimal

	Exam #222 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt fig mango kiwi grape
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[1][0]?
	c. (2 pts) What is the value of argv[2][4]?
	d. (2 pts) What is the value of argv[0][2]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  double x;
  int y;
  Node z;
  char a;
  double *b;
  int *c;
  Node *d;
  char *e;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) &a
```

b. (2 pts) d->next

c. (2 pts) c

d. (2 pts) argv[0]

e. (2 pts) *d

f. (2 pts) d->data

g. (2 pts) argc

h. (2 pts) d->next->next

i. (2 pts) &b

j. (2 pts) z

k. (2 pts) argv[1][2]

Exam #222 Page: 5 Name: _	
-	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #222 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #222 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #222 Page: 8 Name:	

End of Exam

total points=100

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Color in first initial:	A	В	С	D	E	F	G	Н	I	J	K	L	M	N	0	Р	Q	R	S	Τ	U	V	W	X	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
Color in	Α	В	С	D	Ε	F	G	Н		J	К	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х		Z				

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Exam #223 Page: 1 Name: ____

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- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
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- Please write your name on your notes sheet

i. (2 pts) Convert 1100 1000 from binary to base 10

j. (2 pts) Convert fda4 from hexadecimal to binary

	Exam #223 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt kiwi lime mango lemon
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[2][0]?
	c. (2 pts) What is the value of argv[1][2]?
	d. (2 pts) What is the value of argv[0][0]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int s;
  double t;
  Node w;
  char x;
  int *y;
  double *z;
  Node *a;
  char *b;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) argv[0]
```

b. (2 pts) argv[1][2]

c. (2 pts) argc

d. (2 pts) a->data

e. (2 pts) *y

f. (2 pts) a->next

g. (2 pts) &w

h. (2 pts) &a

i. (2 pts) y

j. (2 pts) t

k. (2 pts) a->next->next

Exam #223 Page: 5 Name: _	
_	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #223 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #223 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result

cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #223 Page: 8 Name:	
8	

End of Exam

total points=100

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Color in first initial:	Α	В	С	D	Ε	F	G	Н	I	J	K	L	M	N	0	Р	Q	R	S	Т	U	V	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
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Exam #224 Page: 1 Name: _____

- Each exam is numbered (e.g. Exam #137).
- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

j. (2 pts) Convert 1000 0110 from base 2 to base 10

	Exam #224 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt fig lemon cherry
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[1][2]?
	c. (2 pts) What is the value of argv[0][6]?
	d. (2 pts) What is the value of argv[2][4]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int z;
  Node a;
  double b;
  char c;
  int *d;
  Node *e;
  double *f;
  char *g;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) &g
```

- b. (2 pts) a
- c. (2 pts) e->next->next
- d. (2 pts) *g
- e. (2 pts) argv[1][2]
- f. (2 pts) e->data
- g. (2 pts) e->next
- h. (2 pts) argv[0]
- i. (2 pts) &b
- j. (2 pts) argc
- k. (2 pts) d

Exam #224 Page: 5 Name:	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #224 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #224 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #224 Page: 8 Name:	
0	

End of Exam

total points=100

Color in first initial:	А	В	С	D	Ε	F	G	Н		J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial
Color in last initial:	Α	В	С	D	Е	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z			

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

Name:	
Haratt Address.	O constituents adv
Umail Address:	@ umail.ucsb.edu

- Please write your name above AND AT THE TOP OF EVERY PAGE
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Exam #225 Page: 1 Name: _____

- Each exam is numbered (e.g. Exam #137).
- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam #225 Page: 2 Name:
l.	Please perform the following number conversions.
	a. (2 pts) Convert 37 from octal to binary
	b. (2 pts) Convert 110 001 000 from base 2 to base 8
	c. (2 pts) Convert f9e6 from base 16 to base 2
	d. (2 pts) Convert 1010 1011 from base 2 to base 10
	e. (2 pts) Convert 127 from base 10 to binary
	f. (2 pts) Convert 1010 1110 from base 2 to decimal
	g. (2 pts) Convert 0010 0000 0110 0011 from base 2 to base 16
	h. (2 pts) Convert 9401 from hexadecimal to binary
	i. (2 pts) Convert 1100 0111 1111 0000 from base 2 to hexadecima

j. (2 pts) Convert 001 000 100 from binary to octal

	Exam #225 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt cherry kiwi
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[0][3]?
	c. (2 pts) What is the value of argv[2][1]?
	d. (2 pts) What is the value of argv[1][0]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  Node w;
  double x;
  int y;
  char z;
  Node *a;
  double *b;
  int *c;
  char *d;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) *a
```

- b. (2 pts) argv[0]
- c. (2 pts) a->next
- d. (2 pts) a->data
- e. (2 pts) &x
- f. (2 pts) argc
- g. (2 pts) z
- h. (2 pts) &b
- i. (2 pts) d
- j. (2 pts) a->next->next
- k. (2 pts) argv[1][2]

Exam #225 Page: 5 Name: _	
_	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #225 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #225 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #225 Page: 8 Name:	

End of Exam

total points=100

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CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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Exam #226 Page: 1 Name: ____

- Each exam is numbered (e.g. Exam #137).
- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam #226 Page: 2 Name:
1	Discourant the fellowing assumban assuming
1.	Please perform the following number conversions. a. (2 pts) Convert af31 from base 16 to base 2
	b. (2 pts) Convert 1001 0101 from binary to decimal
	c. (2 pts) Convert 0011 0000 from base 2 to decimal
	d. (2 pts) Convert 7 from decimal to binary
	e. (2 pts) Convert d5e6 from base 16 to binary
	f. (2 pts) Convert 1110 0000 1100 0110 from binary to base 16
	g. (2 pts) Convert 0010 0010 1001 0001 from binary to hexadecimal
	h. (2 pts) Convert 77 from octal to binary
	i. (2 pts) Convert 32 from octal to base 2

j. (2 pts) Convert 0100 1110 from base 2 to base 10

	Exam #226 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt cherry guava
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[1][3]?
	c. (2 pts) What is the value of argv[2][4]?
	d. (2 pts) What is the value of argv[0][0]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  double w;
  Node x;
  int y;
  char z;
  double *a;
  Node *b;
  int *c;
  char *d;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) c
```

b. (2 pts) argv[1][2]

c. (2 pts) w

d. (2 pts) &z

e. (2 pts) b->data

f. (2 pts) b->next->next

g. (2 pts) &c

h. (2 pts) b->next

i. (2 pts) argc

j. (2 pts) *a

k. (2 pts) argv[0]

Exam #226 Page: 5 Name: _	
_	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #226 Page: 6 Name:	
-------------------------	--

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #226 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result

cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #226 Page: 8 Name:	

End of Exam

total points=100

	_	_				_			_	_	_	_					_	_		_		_		_	_	_				
Color in first initial:	А	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
Color in	Α	В	С	D	Е	F	G	Н	ı	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z				

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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Exam #227 Page: 1 Name: ____

- Each exam is numbered (e.g. Exam #137).
- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam #227 Page: 2 Name:
1.	Please perform the following number conversions.
	a. (2 pts) Convert 111 101 000 from binary to base 8
	b. (2 pts) Convert 79 from decimal to base 2
	c. (2 pts) Convert 7 from base 8 to binary
	d. (2 pts) Convert 147 from base 10 to base 2
	e. (2 pts) Convert 56 from base 8 to binary
	f. (2 pts) Convert 7aa2 from hexadecimal to base 2
	g. (2 pts) Convert 1100 1100 1000 0001 from base 2 to hexadecima
	h. (2 pts) Convert 100 001 001 from base 2 to octal
	i. (2 pts) Convert 0011 0011 1100 0010 from base 2 to hexadecima

j. (2 pts) Convert 1110 1010 from binary to base 10

	Exam #227 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt lemon fig guava grape
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[2][1]?
	c. (2 pts) What is the value of argv[1][4]?
	d. (2 pts) What is the value of argv[0][4]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int r;
  double s;
  Node t;
  char w;
  int *x;
  double *y;
  Node *z;
  char *a;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) y
```

b. (2 pts) &x

c. (2 pts) z->next->next

d. (2 pts) argv[1][2]

e. (2 pts) argc

f. (2 pts) z->next

g. (2 pts) w

h. (2 pts) &t

i. (2 pts) *y

j. (2 pts) argv[0]

k. (2 pts) z->data

Exam #227 Page: 5 Name:	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #227 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #227 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #227 Page: 8 Name:	
•	

End of Exam

total points=100

Color in first initial:	А	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	V	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial
Color in last initial:	Α	В	С	D	Ε	F	G	Н	ı	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z			

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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Exam #228 Page: 1 Name: ____

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- The last page clearly says "End of Exam".
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- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam	#228 Page: 2 Name:
1.	Please	perform the following number conversions.
	a.	(2 pts) Convert 010 011 000 from base 2 to base 8
	b.	(2 pts) Convert 1111 0010 from binary to decimal
	c.	(2 pts) Convert 110 000 111 from base 2 to base 8
	d.	(2 pts) Convert 010 011 110 from base 2 to octal
	e.	(2 pts) Convert 0010 1001 from base 2 to base 10
	f.	(2 pts) Convert 36 from base 8 to base 2
	g.	(2 pts) Convert 111 100 from base 2 to octal
	h.	(2 pts) Convert 2b12 from base 16 to binary
	i.	(2 pts) Convert 0010 0110 0011 0101 from binary to hexadecimal

j. (2 pts) Convert 111 101 100 from binary to octal

	Exam #228 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt lime apple grape
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[1][0]?
	c. (2 pts) What is the value of argv[0][4]?
	d. (2 pts) What is the value of argv[2][2]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  Node d;
  int e;
  double f;
  char g;
  Node *h;
  int *p;
  double *q;
  char *r;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) h->next->next
```

- b. (2 pts) h->data
- c. (2 pts) h->next
- d. (2 pts) *h
- e. (2 pts) &r
- f. (2 pts) argv[1][2]
- g. (2 pts) &f
- h. (2 pts) r
- i. (2 pts) argv[0]
- j. (2 pts) f
- k. (2 pts) argc

Exam #228 Page: 5 Name: _	
-	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #228 Page: 6 Name	
------------------------	--

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #228 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result

cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #228 Page: 8 Name:	

End of Exam

total points=100

Color in first initial:	Α	В	С	D	Ε	F	G	Н	I	J	K	L	M	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z	section (9.10,11, 12,1,2)	first name initial	last name initial
Color in last initial:	Α	В	С	D	Ε	F	G	Н	I	J	K	L	M	N	0	Р	Q	R	S	Τ	U	٧	W	Х	Υ	Z			

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

Name:	
Haratt Adduses	O constituents and a
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Exam #229 Page: 1 Name: _____

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- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam	#229 Page: 2 Name:
1.		perform the following number conversions. (2 pts) Convert 145 from decimal to binary
	b.	(2 pts) Convert 1010 1100 1101 0000 from base 2 to base 16
	c.	(2 pts) Convert 1011 0001 0110 1000 from base 2 to hexadecimal
	d.	(2 pts) Convert 1101 1011 0011 1100 from base 2 to hexadecimal
	e.	(2 pts) Convert 3 from base 8 to binary
	f.	(2 pts) Convert 0001 0101 1101 0000 from base 2 to base 16
	g.	(2 pts) Convert 110 010 000 from binary to octal
	h.	(2 pts) Convert 54 from base 8 to base 2
	i.	(2 pts) Convert 74 from base 8 to base 2

j. (2 pts) Convert 100 100 100 from binary to octal

	Exam #229 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt lime date
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[0][1]?
	c. (2 pts) What is the value of argv[2][2]?
	d. (2 pts) What is the value of argv[1][0]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  Node q;
  double r;
  int s;
  char t;
  Node *w;
  double *x;
  int *y;
  char *z;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) y
```

c. (2 pts) argc

e. (2 pts) &x

f. (2 pts) w->data

g. (2 pts) argv[1][2]

h. (2 pts) w->next->next

i. (2 pts) argv[0]

j. (2 pts) &r

k. (2 pts) w->next

Exam #229 Page: 5 Name: _	
9	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #229 Page: 6 Name: _	
----------------------------------	--

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #229 Page: 7	Name:

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result

cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #229 Page: 8 Name:	

End of Exam

total points=100

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Color in first initial:	Α	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial
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- Please write your name on your notes sheet

	Exam	#230 Page: 2 Name:
1.		perform the following number conversions.
	a.	(2 pts) Convert 1100 0010 from base 2 to decimal
	b.	(2 pts) Convert 7e56 from base 16 to binary
	c.	(2 pts) Convert 1110 0111 from base 2 to base 10
	d.	(2 pts) Convert 0011 0111 from base 2 to decimal
	e.	(2 pts) Convert 0110 0011 0001 0011 from base 2 to hexadecimal
	f.	(2 pts) Convert 010 010 000 from binary to octal
	g.	(2 pts) Convert 1100 1010 0101 0011 from binary to base 16
	h.	(2 pts) Convert 110 111 from binary to octal
	i.	(2 pts) Convert 1001 0010 0000 0111 from binary to base 16

j. (2 pts) Convert 101 111 100 from binary to octal

	Exam #230 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt lemon cherry apple lime
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[2][0]?
	c. (2 pts) What is the value of argv[0][5]?
	d. (2 pts) What is the value of argv[1][0]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  double q;
  int r;
  Node s;
  char t;
  double *w;
  int *x;
  Node *y;
  char *z;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) argv[0]
```

b.
$$(2 pts) *x$$

e. (2 pts) argc

f. (2 pts) argv[1][2]

g. (2 pts) &q

h. (2 pts) s

i. (2 pts) y->next

j. (2 pts) y->data

k. (2 pts) y->next->next

Exam #230 Page: 5 Name:	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #230 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #230 Page: 8 Name:		

End of Exam

total points=100

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Color in first initial:	А	В	С	D	Е	F	G	Н	I	J	K	L	M	N	0	Р	Q	R	S	Т	U	٧	W	X	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
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CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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Exam #231 Page: 1 Name: ____

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- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam	#231 Page: 2 Name:
1.		perform the following number conversions. (2 pts) Convert 78d from base 16 to base 2
	b.	(2 pts) Convert 001 110 000 from binary to base 8
	c.	(2 pts) Convert 110 101 011 from binary to base 8
	d.	(2 pts) Convert 60 from base 8 to base 2
	e.	(2 pts) Convert 21 from base 8 to base 2
	f.	(2 pts) Convert 70 from octal to base 2
	g.	(2 pts) Convert 0111 0100 0100 0100 from base 2 to hexadecimal
	h.	(2 pts) Convert 163 from decimal to binary
	i.	(2 pts) Convert 5c1e from base 16 to base 2

j. (2 pts) Convert 010 110 100 from base 2 to octal

	Exam #231 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt lemon fig lime guava
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[2][1]?
	c. (2 pts) What is the value of argv[1][0]?
	d. (2 pts) What is the value of argv[0][1]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  double g;
  int h;
  Node p;
  char q;
  double *r;
  int *s;
  Node *t;
  char *w;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) argc
```

- b. (2 pts) t->data
- c. (2 pts) t->next->next
- d. (2 pts) &s
- e. (2 pts) g
- f. (2 pts) r
- g. (2 pts) argv[0]
- h. (2 pts) *w
- i. (2 pts) argv[1][2]
- j. (2 pts) t->next
- k. (2 pts) &q

Exam #231 Page: 5 Name: _	
-	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #231 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #231 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #231 Page: 8 Name:	
8	

End of Exam

total points=100

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Color in first initial:	А	В	С	D	Е	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Τ	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
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- Please write your name on your notes sheet

	Exam	#232 Page: 2 Name:
1.		perform the following number conversions.
		(2 pts) Convert 210 from decimal to have 2
		(2 pts) Convert 219 from decimal to base 2 (2 pts) Convert 0111 1011 from base 2 to decimal
		(2 pts) Convert 7efb from base 16 to base 2
		(2 pts) Convert 1011 0110 1101 1000 from base 2 to hexadecimal
		(2 pts) Convert e366 from hexadecimal to base 2
	g.	(2 pts) Convert 1100 0101 from base 2 to base 10
	h.	(2 pts) Convert 49d3 from hexadecimal to base 2
	i.	(2 pts) Convert 4e92 from hexadecimal to binary

j. (2 pts) Convert 31 from base 8 to base 2

	Exam #232 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt fig cherry lemon
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[1][1]?
	c. (2 pts) What is the value of argv[0][0]?
	d. (2 pts) What is the value of argv[2][4]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  Node z;
  int a;
  double b;
  char c;
  Node *d;
  int *e;
  double *f;
  char *g;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) argc
```

- b. (2 pts) &d
- c. (2 pts) d->next
- d. (2 pts) c
- e. (2 pts) argv[0]
- f. (2 pts) d->next->next
- g. (2 pts) g
- h. (2 pts) d->data
- i. (2 pts) &c
- j. (2 pts) *f
- k. (2 pts) argv[1][2]

Exam #232 Page: 5 Name: _	
-	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #232 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #232 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result

cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #232 Page: 8 Name:	
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End of Exam

total points=100

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Color in first initial:	А	В	С	D	E	F	G	Н	I	J	K	L	M	N	0	Р	Q	R	S	Τ	U	V	W	Х	Y	Z	(9,10,11, 12,1,2)	initial	initial	
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- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Lxaiii	#255 Page: 2 Name:
1.	Please	perform the following number conversions.
	a.	(2 pts) Convert 101 001 001 from base 2 to base 8
	b.	(2 pts) Convert 45 from octal to binary
	c.	(2 pts) Convert 0110 1000 from binary to decimal
	d.	(2 pts) Convert ae5 from base 16 to binary
	e.	(2 pts) Convert 46 from base 8 to base 2
	f.	(2 pts) Convert 125 from base 10 to base 2
	g.	(2 pts) Convert 0110 1111 from binary to base 10
	h.	(2 pts) Convert 110 100 011 from base 2 to base 8
	i.	(2 pts) Convert 0001 1000 1010 1001 from base 2 to base 16

j. (2 pts) Convert 0 from base 8 to base 2

	Exam #233 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt apple lemon
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[1][1]?
	c. (2 pts) What is the value of argv[0][4]?
	d. (2 pts) What is the value of argv[2][1]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  double w;
  Node x;
  int y;
  char z;
  double *a;
  Node *b;
  int *c;
  char *d;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) argv[0]
```

b. (2 pts) argv[1][2]

c. (2 pts) &y

d. (2 pts) b->next

e. (2 pts) argc

f. (2 pts) b->data

g. (2 pts) &c

h. (2 pts) y

i. (2 pts) c

j. (2 pts) *a

k. (2 pts) b->next->next

Exam #233 Page: 5 Name: _	
-	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #233 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #233 Page: 7 Name: j	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result

cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #233 Page: 8 Name:	
0	

End of Exam

total points=100

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Color in first initial:	Α	В	С	D	Ε	F	G	Н	I	J	K	L	M	N	0	Р	Q	R	S	Τ	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
Color in last initial:	А	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Y	Z				

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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Exam #234 Page: 1 Name: _____

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- Each pages is numbered (e.g. Page 1, Page 2, etc.)
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- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam #234 Page: 2 Name:
	,
1.	Please perform the following number conversions.
	a. (2 pts) Convert 65 from octal to binary
	b. (2 pts) Convert 0110 0110 1111 1001 from base 2 to base 16
	c. (2 pts) Convert 159 from decimal to binary
	d. (2 pts) Convert 0110 0111 0010 0110 from base 2 to base 16
	e. (2 pts) Convert 111 100 000 from base 2 to base 8
	f. (2 pts) Convert 53 from base 8 to binary
	g. (2 pts) Convert 0111 0010 from base 2 to decimal
	h. (2 pts) Convert 001 110 100 from base 2 to base 8
	i. (2 pts) Convert 1011 1010 0110 0011 from binary to hexadecimal

j. (2 pts) Convert 001 011 100 from base 2 to octal

	Exam #234 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt grape lime lemon mango
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[2][0]?
	c. (2 pts) What is the value of argv[0][1]?
	d. (2 pts) What is the value of argv[1][1]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int g;
  double h;
  Node p;
  char q;
  int *r;
  double *s;
  Node *t;
  char *w;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) argv[1][2]
```

- b. (2 pts) *w
- c. (2 pts) argv[0]
- d. (2 pts) q
- e. (2 pts) t->next
- f. (2 pts) &r
- g. (2 pts) t->data
- h. (2 pts) &g
- i. (2 pts) argc
- j. (2 pts) t->next->next
- k. (2 pts) s

Exam #234 Page: 5 Name: _	·
-	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #234 Page: 6 Name:	
-------------------------	--

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #234 Page: 7 Name: j	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #234 Page: 8 Name:	

End of Exam

total points=100

Color in first initial:	Α	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial
Color in last initial:	Α	В	С	D	Ε	F	G	Н	I	J	K	L	M	N	0	Р	Q	R	S	Т	U	V	W	Х	Υ	Z			

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Exam #235 Page: 1 Name: _____

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- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam	#235 Page: 2 Name:
1.	Please	perform the following number conversions.
	a.	(2 pts) Convert 0001 1011 from base 2 to decimal
	b.	(2 pts) Convert 0010 0001 from binary to decimal
	c.	(2 pts) Convert 141 from decimal to binary
	d.	(2 pts) Convert f311 from base 16 to binary
	e.	(2 pts) Convert 211 from base 10 to base 2
	f.	(2 pts) Convert 0100 1001 1000 1010 from binary to hexadecimal
	g.	(2 pts) Convert 0001 1100 from binary to base 10
	h.	(2 pts) Convert 194 from decimal to base 2
	i.	(2 pts) Convert 1000 0100 0111 1011 from base 2 to base 16

j. (2 pts) Convert 62 from octal to base 2

	Exam #235 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt guava fig mango cherry
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[0][3]?
	c. (2 pts) What is the value of argv[1][1]?
	d. (2 pts) What is the value of argv[2][0]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  double c;
  int d;
  Node e;
  char f;
  double *g;
  int *h;
  Node *p;
  char *q;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) p->next->next
```

- b. (2 pts) argc
- c. (2 pts) &f
- d. (2 pts) d
- e. (2 pts) g
- f. (2 pts) p->next
- g. (2 pts) argv[0]
- h. (2 pts) argv[1][2]
- i. (2 pts) p->data
- j. (2 pts) &p
- k. (2 pts) *h

·	Exam #235 Page: 5 Name: _	
	_	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #235 Page: 6 Name:	
-------------------------	--

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #235 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #235 Page: 8 Name:	

End of Exam

total points=100

		_	_	_						_	_	_																		1
Color in first initial:	А	В	С	D	Е	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	X	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
Color in	Α	В	С	D	Е	F	G	Н	l	J	K	L	М	N	0	Р	Q	R	S	Т	U	V	W	X	Υ	Z				

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

Name:	
Haratt Adduses	O constituents and a
Umail Address:	@ umail.ucsb.edu

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Exam #236 Page: 1 Name: ____

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- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	cxam	#250 Page: 2 Name:
۱.	Please	perform the following number conversions.
	a.	(2 pts) Convert 0111 0011 from binary to decimal
	b.	(2 pts) Convert 110 000 111 from binary to base 8
	c.	(2 pts) Convert 328b from hexadecimal to base 2
	d.	(2 pts) Convert 101 011 101 from binary to octal
	e.	(2 pts) Convert 0100 0100 0000 0101 from base 2 to hexadecimal
	f.	(2 pts) Convert 010 010 101 from binary to octal
	g.	(2 pts) Convert 6db9 from base 16 to binary
	h.	(2 pts) Convert 32 from octal to base 2
	i.	(2 pts) Convert 118 from decimal to binary

j. (2 pts) Convert 1101 0101 1000 0010 from binary to hexadecimal

	Exam #236 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt lime kiwi date
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[0][0]?
	c. (2 pts) What is the value of argv[1][2]?
	d. (2 pts) What is the value of argv[2][2]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int t;
  Node w;
  double x;
  char y;
  int *z;
  Node *a;
  double *b;
  char *c;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) c
```

b. (2 pts) &a

c. (2 pts) a->next->next

d. (2 pts) *z

e. (2 pts) a->next

f. (2 pts) &y

g. (2 pts) t

h. (2 pts) argv[0]

i. (2 pts) argc

j. (2 pts) argv[1][2]

k. (2 pts) a->data

Exam #236 Page: 5 Name:	
· ·	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #236 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #236 Page: 8 Name:	•

End of Exam

total points=100

Color in first initial:	А	В	С	D	Е	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial
Color in last initial:	Α	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	V	W	Х	Υ	Z			

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

Name:	
Haratt Adduses	O constituents and a
Umail Address:	@ umail.ucsb.edu

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- Be sure you turn in every page of this exam.

Exam #237 Page: 1 Name: _____

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- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam	#237 Page: 2 Name:
۱.	Please	perform the following number conversions.
	a.	(2 pts) Convert 1011 1000 0100 0110 from base 2 to base 16
	b.	(2 pts) Convert 0111 1110 from binary to decimal
	c.	(2 pts) Convert 32 from decimal to base 2
	d.	(2 pts) Convert 0011 1010 from binary to base 10
	e.	(2 pts) Convert 001 001 110 from base 2 to base 8
	f.	(2 pts) Convert 71 from octal to base 2
	g.	(2 pts) Convert 0001 0111 1010 1010 from binary to hexadecimal
	h.	(2 pts) Convert 111 100 000 from binary to base 8
	i.	(2 pts) Convert 4105 from hexadecimal to base 2

j. (2 pts) Convert 0111 0001 0110 1100 from binary to hexadecimal

	Exam #237 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt mango lime
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[2][3]?
	c. (2 pts) What is the value of argv[0][0]?
	d. (2 pts) What is the value of argv[1][4]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  double q;
  Node r;
  int s;
  char t;
  double *w;
  Node *x;
  int *y;
  char *z;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) x->next->next
```

- b. (2 pts) argc
- c. (2 pts) t
- d. (2 pts) x->data
- e. (2 pts) &s
- f. (2 pts) argv[0]
- g. (2 pts) argv[1][2]
- h. (2 pts) &z
- i. (2 pts) *y
- j. (2 pts) x->next
- k. (2 pts) x

Exam #237 Page: 5 Name:	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #237 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #237 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #237 Page: 8 Name:	
8	

End of Exam

total points=100

Color in first initial:	Α	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	V	W	Х	Υ	Ζ	section (9.10,11, 12,1,2)	first name initial	last name initial
Color in last initial:	Α	В	С	D	Ε	F	G	Н	I	J	Κ	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z			

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

Name:	
Haratt Adduses	O constituents and a
Umail Address:	@ umail.ucsb.edu

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Exam #238 Page: 1 Name: _____

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- Each pages is numbered (e.g. Page 1, Page 2, etc.)
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- You are permitted one sheet of paper (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

j. (2 pts) Convert 47 from octal to base 2

	Exam #238 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt guava apple lemon grape
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[2][1]?
	c. (2 pts) What is the value of argv[1][4]?
	d. (2 pts) What is the value of argv[0][1]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int c;
  double d;
  Node e;
  char f;
  int *g;
  double *h;
  Node *p;
  char *q;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) p->next->next
```

- b. (2 pts) c
- c. (2 pts) &d
- d. (2 pts) argv[1][2]
- e. (2 pts) *h
- f. (2 pts) p->data
- g. (2 pts) h
- h. (2 pts) argc
- i. (2 pts) p->next
- j. (2 pts) argv[0]
- k. (2 pts) &g

·	Exam #238 Page: 5 Name: _	
	_	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #238 Page: 6 Name	
------------------------	--

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #238 Page: 7 Name: j	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #238 Page: 8 Name:	•	

End of Exam

total points=100

Color in first initial:	Α	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial
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CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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Exam #239 Page: 1 Name: _____

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- Please write your name on your notes sheet

Exam #239 Page: 2 Name: ___

	Exam #239 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt lime kiwi fig banana
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[1][3]?
	c. (2 pts) What is the value of argv[2][3]?
	d. (2 pts) What is the value of argv[0][5]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int z;
  double a;
  Node b;
  char c;
  int *d;
  double *e;
  Node *f;
  char *g;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) f->next->next
```

- b. (2 pts) *g
- c. (2 pts) b
- d. (2 pts) f->next
- e. (2 pts) argc
- f. (2 pts) &z
- g. (2 pts) &f
- h. (2 pts) d
- i. (2 pts) f->data
- j. (2 pts) argv[1][2]
- k. (2 pts) argv[0]

Exam #239 Page: 5 Name: _	·
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4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #239 Page: 6 Name:	
-------------------------	--

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #239 Page: 7 Name	:

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #239 Page: 8 Name:	
8	

End of Exam

total points=100

Color in first initial:	А	В	С	D	E	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial
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CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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Exam #240 Page: 1 Name: _____

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- Please write your name on your notes sheet

	Exam #240 Page: 2 Name:
1.	Please perform the following number conversions.
	a. (2 pts) Convert 72 from base 8 to base 2
	b. (2 pts) Convert 6778 from base 16 to base 2
	c. (2 pts) Convert 46 from base 10 to base 2
	d. (2 pts) Convert 6106 from base 16 to binary
	e. (2 pts) Convert 0110 0111 from base 2 to base 10
	f. (2 pts) Convert 011 101 101 from binary to base 8
	g. (2 pts) Convert 1101 0111 0110 1000 from binary to hexadecimal
	h. (2 pts) Convert 100 100 010 from base 2 to octal
	i. (2 pts) Convert 010 111 000 from base 2 to base 8

j. (2 pts) Convert 1100 0111 1101 1110 from base 2 to hexadecimal

	Exam #240 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt guava kiwi banana
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[1][2]?
	c. (2 pts) What is the value of argv[0][2]?
	d. (2 pts) What is the value of argv[2][2]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  Node x;
  int y;
  double z;
  char a;
  Node *b;
  int *c;
  double *d;
  char *e;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) b->next
```

- b. (2 pts) argv[0]
- c. (2 pts) argc
- d. (2 pts) b->data
- e. (2 pts) c
- f. (2 pts) argv[1][2]
- g. (2 pts) y
- h. (2 pts) *e
- i. (2 pts) b->next->next
- j. (2 pts) &x
- k. (2 pts) &b

Exam #240 Page: 5 Name:	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #240 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #240 Pa	ge: 7 Name:	:

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result

cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #240 Page: 8 Name:	í	-

End of Exam

total points=100

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Color in first initial:	Α	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Τ	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
Color in	A	R	c	П	F	F	G	Н		Л	к	$\bar{\Box}$	М	N	0	P		R	S	Т	u	V	w	χ	γ	7				

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Exam #241 Page: 1 Name: ___

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- Please write your name on your notes sheet

	Exam #241 Page: 2 Name:
1.	Please perform the following number conversions.
	a. (2 pts) Convert 0010 1111 from base 2 to decimal
	b. (2 pts) Convert 0010 0001 1010 0001 from binary to hexadecimal
	c. (2 pts) Convert 27 from decimal to binary
	d. (2 pts) Convert ecf0 from base 16 to base 2
	e. (2 pts) Convert 4b12 from base 16 to binary
	f. (2 pts) Convert 4 from octal to base 2
	g. (2 pts) Convert 1000 0001 0101 1001 from base 2 to base 16
	h. (2 pts) Convert 110 001 from base 2 to octal
	i. (2 pts) Convert 0010 0110 from binary to decimal

j. (2 pts) Convert 63c9 from hexadecimal to binary

	Exam #241 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt date lime lemon
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[0][4]?
	c. (2 pts) What is the value of argv[1][0]?
	d. (2 pts) What is the value of argv[2][2]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  Node d;
  int e;
  double f;
  char g;
  Node *h;
  int *p;
  double *q;
  char *r;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) h->next->next
```

- b. (2 pts) g
- c. (2 pts) h->next
- d. (2 pts) &g
- e. (2 pts) argv[1][2]
- f. (2 pts) argc
- g. (2 pts) *h
- h. (2 pts) h->data
- i. (2 pts) &q
- j. (2 pts) h
- k. (2 pts) argv[0]

Exam #241 Page: 5 Name:	
8	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #241 Page:	6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #241 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #241 Page: 8 Name:	

End of Exam

total points=100

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Color in first initial:	А	В	С	D	Ε	F	G	Н	I	J	K	L	M	N	0	Р	Q	R	S	Т	U	۷	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
Color in	Α	В	С	D	Е	F	G	Н	ı	J	Κ	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	z				

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

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Exam #242 Page: 1 Name: ____

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	Exam #242 Page: 2 Name:
1.	Please perform the following number conversions.
	a. (2 pts) Convert 011 000 010 from binary to octal
	b. (2 pts) Convert 74 from base 8 to base 2
	c. (2 pts) Convert 24 from octal to base 2
	d. (2 pts) Convert 0100 1001 0011 0010 from base 2 to base 16
	e. (2 pts) Convert 1010 0001 0011 0000 from base 2 to hexadecimal
	f. (2 pts) Convert 0100 0010 from base 2 to decimal
	g. (2 pts) Convert 1000 0011 from binary to decimal
	h. (2 pts) Convert 81ea from hexadecimal to binary
	i. (2 pts) Convert 110 010 000 from base 2 to base 8

j. (2 pts) Convert 100 100 000 from binary to octal

	Exam #242 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt grape lime
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[2][0]?
	c. (2 pts) What is the value of argv[0][3]?
	d. (2 pts) What is the value of argv[1][2]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  Node d;
  double e;
  int f;
  char g;
  Node *h;
  double *p;
  int *q;
  char *r;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) &e
```

b. (2 pts) h->data

d. (2 pts) r

e. (2 pts) argc

f. (2 pts) h->next->next

g. (2 pts) d

h. (2 pts) &h

i. (2 pts) argv[0]

j. (2 pts) h->next

k. (2 pts) argv[1][2]

Exam #242 Page: 5 Name:	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #242 Page: 6 Name:		
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5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #242 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #242 Page: 8 Name:	
8	

End of Exam

total points=100

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Color in first initial:	А	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
Color in last initial:	Α	В	С	D	Е	F	G	Н	I	J	К		М	N	0	Р	Q	R	S	Т	U	٧	W	Х	Υ	Z				

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

Name:	
Umail Address:	@ umail.ucsb.edu

- Please write your name above AND AT THE TOP OF EVERY PAGE
- Be sure you turn in every page of this exam.

Exam #243 Page: 1 Name: _____

- Each exam is numbered (e.g. Exam #137).
- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

j. (2 pts) Convert 001 010 111 from binary to octal

	Exam #243 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt fig guava lime banana
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[2][1]?
	c. (2 pts) What is the value of argv[1][0]?
	d. (2 pts) What is the value of argv[0][0]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int a;
  double b;
  Node c;
  char d;
  int *e;
  double *f;
  Node *g;
  char *h;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) &g
```

b. (2 pts) argv[1][2]

c. (2 pts) argc

d. (2 pts) &a

e. (2 pts) g

f. (2 pts) argv[0]

g. (2 pts) g->next

h. (2 pts) g->data

i. (2 pts) *f

j. (2 pts) g->next->next

k. (2 pts) c

Exam #243 Page: 5 Name: _	
_	

4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #243 Page: 6 Name:	

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #243 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result

cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #243 Page: 8 Name:	

End of Exam

total points=100

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Color in first initial:	А	В	С	D	Ε	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Т	U	V	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial
Color in last initial:	А	В	С	D	Ε	F	G	Н	I	J	K	L	M	N	0	Р	Q	R	S	Τ	U	٧	W	X	Υ	Z			

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

Name:	
Umail Address:	

- Please write your name above AND AT THE TOP OF EVERY PAGE
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Exam #244 Page: 1 Name: _____

- Each exam is numbered (e.g. Exam #137).
- Each pages is numbered (e.g. Page 1, Page 2, etc.)
- The last page clearly says "End of Exam".
- This exam is closed book, closed notes, closed mouth, cell phone off
- You are permitted **one sheet of paper** (max size 8.5x11") on which to write notes
- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam	#244 Page: 2 Name:
1.		perform the following number conversions. (2 pts) Convert fe78 from hexadecimal to base 2
		(2 pts) Convert 1e78 from hexadecimal to base 2 (2 pts) Convert 24 from base 8 to base 2
		(2 pts) Convert 24 from base 6 to base 2 (2 pts) Convert 1110 0101 1000 0001 from binary to hexadecimal
		(2 pts) Convert 100 100 001 from binary to octal
		(2 pts) Convert 244 from base 10 to base 2
	f.	(2 pts) Convert 222 from decimal to binary
	g.	(2 pts) Convert 0111 1111 0010 1011 from binary to base 16
	h.	(2 pts) Convert 101 100 000 from base 2 to octal
	i.	(2 pts) Convert 41 from base 8 to base 2

j. (2 pts) Convert 3788 from hexadecimal to base 2

	Exam #244 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt mango fig kiwi
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[0][6]?
	c. (2 pts) What is the value of argv[1][2]?
	d. (2 pts) What is the value of argv[2][0]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int r;
  Node s;
  double t;
  char w;
  int *x;
  Node *y;
  double *z;
  char *a;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) y
```

- b. (2 pts) t
- c. (2 pts) y->data
- d. (2 pts) argc
- e. (2 pts) &r
- f. (2 pts) &y
- g. (2 pts) argv[0]
- h. (2 pts) y->next->next
- i. (2 pts) y->next
- j. (2 pts) *y
- k. (2 pts) argv[1][2]

Exam #244 Page: 5 Name:	
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4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #244 Page: 6 Name	
------------------------	--

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #244 Page: 7 Name:	

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result
   cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

Exam #244 Page: 8 Name:	
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End of Exam

total points=100

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Color in first initial:	Α	В	С	D	Е	F	G	Н	I	J	K	L	М	N	0	Р	Q	R	S	Τ	U	٧	W	Х	Υ	Z	section (9,10,11, 12,1,2)	first name initial	last name initial	
Color in	A	R	C	П	F	F	G	Н		J	κ	$\overline{1}$	М	N	0	Р	0	R	S	Т	IJ	V	W	X	Υ	7				

CS16—Midterm Exam E02, F14, Phill Conrad, UC Santa Barbara Wednesday, 12/03/2014

Name:	
Umail Address:	@ umail.ucsb.edu

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Exam #245 Page: 1 Name: ___

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- These sheets will be collected with the exam, and might not be returned
- Please write your name on your notes sheet

	Exam #245 Pa	age: 2 Name:		
Ι.	. Please perform	n the following numb	per conversions.	
	a. (2 pts)	Convert 20 from octa	al to base 2	
	b. (2 pts)	Convert 10 from dec	imal to binary	
	c. (2 pts)	Convert d362 from b	pase 16 to binary	
	d. (2 pts)	Convert 0001 1100 f	from binary to base 10	
	e. (2 pts)	Convert 1101 1000 (0100 0000 from base 2 to he	exadecimal
	f. (2 pts)	Convert 7801 from h	nexadecimal to base 2	
	g. (2 pts)	Convert 0010 1001 (0001 1011 from base 2 to he	exadecimal
	h. (2 pts)	Convert 55 from bas	e 10 to binary	
	i. (2 pts)	Convert 010 011 101	from binary to octal	

j. (2 pts) Convert d372 from base 16 to base 2

	Exam #245 Page: 3 Name:
2.	Assume the main function in the program runIt.cpp starts with:
	<pre>int main(int argc, char *argv[]) {</pre>
	Further, suppose this program is invoked with the following command line:
	./runIt fig cherry banana
	a. (2 pts) What is the value of argc in this case?
	b. (2 pts) What is the value of argv[2][4]?
	c. (2 pts) What is the value of argv[0][2]?
	d. (2 pts) What is the value of argv[1][1]?

3. Given the following declarations:

```
struct Node {
  int data;
  Node *next;
};

int main(int argc, char *argv[]) {
  int h;
  Node p;
  double q;
  char r;
  int *s;
  Node *t;
  double *w;
  char *x;

return 0;
}
```

Specify the type of each of these expressions (e.g. int, int *, etc.

```
a. (2 pts) t->data
```

- b. (2 pts) h
- c. (2 pts) argc
- d. (2 pts) &x
- e. (2 pts) &r
- f. (2 pts) t->next
- g. (2 pts) s
- h. (2 pts) *w
- i. (2 pts) argv[1][2]
- j. (2 pts) argv[0]
- k. (2 pts) t->next->next

Exam #245 Page: 5 Name:	
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4. (20 pts) Given the following struct definition:

```
struct Precip {
  int day;
  double inches;
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

```
// days is an array with a month's worth of Precip structs
// numDays is the number of days in that month
// return the total rainfall of all days in the month.
double totalRainfall(Precip *days, int numDays);
```

Answer in the space below

Exam #245 Page: 6 Name:	
-------------------------	--

5. (20 pts) Given the following struct for representing Complex numbers (which have a real part and an imaginary part):

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

Write the full function definition for a function that would have the following prototype. The prameters to the function and the return value should be as described in the comment.

Note that you MUST follow the struct definition given here; pay close attention to the names of both the members of the struct, and the parameters to the function.

Also note that the parameter p is a *pointer* and write your code accordingly.

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

Answer in the space below.

Exam #245 Page: 7 Name	:

6. (10 pts) Given the same struct definition as in the previous problem:

```
// Complex number, e.g. a+bi
struct Complex {
  double real; // the a part
  double imag; // the b part
};
```

And given the same function prototype:

```
// p is a pointer to a Complex number struct
// a is the real part of the number.
// b is the imag part (coefficient of i)
void initComplex(Complex *p, double a, double b);
```

And given the following prototype, for a function you are NOT required to write, but may assume is ALREADY DEFINED:

```
string complexToString(Complex c);
```

Fill in the missing line of code in the main program below after the comment that says TODO.

You may assume that the header file complex.h contains the struct definition and the function prototype given above.

```
#include <iostream>
using namespace std;

#include "complex.h"

int main() {
   Complex c;

   // TODO: Write a function call to initComplex that sets
   // the real part to 2.3 and the imaginary part to 4.5

// Show result

cout << "c=" << complexToString(c) << endl;
   return 0;
}</pre>
```

End of Exam

total points=100