```
NAME: _____
EARLY START TIME: _____    EARLY TURNIN TIME: _____
```

Exam Answers
Introduction to Mathematical Problem Solving
28 September 2017

- You have 1 hour and 15 minutes for the exam. If you start the exam early, write down your starting time above and turn in your exam before your time limit is exceeded.

- Your answers should be written on this exam, in the appropriate places.

- During the exam, you may not use any notes, cell phones, computers or other electronic devices.

Question 1: What will be the 5 numbers printed by this script:

```
for i = 1 : 5
  if ( i == 1 )
    a = 1;
  else
    a = 2 * a + 1;
  end
  fprintf ( '%d\n', a );
end
```

#1 = 1, #2 = 3, #3 = 7, #4 = 15, #5 = 31

Question 2: What will be the value of **i** and **b** after the following MATLAB script is executed?

```
i = 0;
while ( i <= 10 )
  i = i + 1;
  b = i + 1;
end
fprintf ( 'i = %d, b = %d\n', i, b );
```

i = 11 b = 12

Question 3: What will be the value of **c** after the following MATLAB script is executed?

```
c = 2;
for k = 2 : 6
  c = c + k;
end
fprintf ( 'c = %d\n', c );
```

c = 22

Question 4: What will be the value of **e** after the following MATLAB script is executed?

```
e = 7;
if ( e < 10 )
  e = e + 5;
else
  e = e - 5;
end
if ( e > 10 )
  e = 2 * e;
end

e = 24
```

Question 5: What will be the values of **e**, **f** and **g** after the following MATLAB script is executed?

```
e = 10;
f = -6;
if ( f < 0 )
  e = - e;
  f = - f;
end
g = gcd ( e, f );
e = e / g;
f = f / g;

e = -5   f = 3   g = 2
```

Question 6: What will be the value of **e**, **f**, and **g** after the following MATLAB script is executed?

```
e = 1;
f = 2;
g = 3;
e = e + g;
f = e + g;
g = e + g;

e = 4   f = 7   g = 7
```

Question 7: What will be the value of **h** after the following MATLAB script is executed?

```
h = 0;
for i = 1 : 3
  for j = 1 : i
    h = h + 1;
  end
end

h = 6
```

Question 8: What will be the value of **d** after the following MATLAB script is executed?

```
d = 10;
while ( true )
  d = d + 2;
  if ( mod ( d, 9 ) == 0 )
    break;
  end
  d = d + 1;
end
```

d = 18

Question 9: What will be the 5 values printed by this script:

```
for i = 1 : 5

  if ( i == 1 )
    d = 1;
  elseif ( i == 2 )
    dold = d;
    d = 0;
  else
    dolder = dold;
    dold = d;
    d = ( i - 2 ) * ( dold + dolder );
  end
  fprintf ( '%d\n', d );
end
```

#1 = 1, #2 = 0, #3 = 1, #4 = 2, #5 = 9

Question 10: What is the value of **a** and **b** after this script is executed?

```
a = 15;
b = 9;
while ( 0 < b )
  r = mod ( a, b );
  a = b;
  b = r;
end
```

a = 3 b = 0

Honor Code:

On my honor, as a Virginia Tech student, I have neither given nor received unauthorized assistance on this assignment.

Student Signature