

NAME: -----

**Practice Exam Answers**  
Introduction to Mathematical Problem Solving  
28 September 2017

---

**Question 1:** What will be the 4 numbers printed by this script:

```
for i = 1 : 4
    if ( i == 1 )
        a = 2;
    else
        a = a^2 - 1;
    end
    fprintf ( '%d\n', a );
end
#1 = 2 #2 = 3 #3 = 8 #4 = 63
```

---

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

```
i = 0;
while ( i <= 7 )
    b = i - 3;
    i = i + 2
end
i = 8    b = 3 (Careful!)
```

---

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

```
c = 5;
for k = 0 : 3
    c = c + 2 * k + 1;
end
c = 21
```

---

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

```
d = 10;
e = 1;
while ( true )
    d = d - 2;
    if ( d <= e )
        break;
    end
    e = e + 1;
end
d = 2    e = 4
```

---

**Question 5:** What will be the value of **e** after the following MATLAB script is executed?

```
e = 96;
if ( e > 100 )
    e = e - 10;
else
    e = e + 10;
end

if ( e > 100 )
    e = e - 5;
else
    e = e + 5;
end

e = 101
```

---

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

```
f = 6;
if ( 10 < f )
    f = f + 5;
elseif ( 0 <= f && f <= 4 )
    f = f - 5;
else
    f = f + 2;
end
e = 12;
g = gcd ( e, f );
e = e / g;
f = f / g;

e = 3  f = 2  g = 4
```

---

**Question 7:** What will be the value of **e**, **f**, and **g** after the following MATLAB script is executed?

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

e = 5  f = 8  g = 13
```

---

**Question 8:** What will be the (last) value of **h** after the following MATLAB script is executed?

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

```
    fprintf ( '%d\n', h );
end
end
h = 6
```

---

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

```
for i = 1 : 5

    if ( i == 1 )
        g = 1;
    elseif ( i == 2 )
        gold = g;
        g = 3;
    else
        golder = gold;
        gold = g;
        g = gold + golder;
    end
    fprintf ( '%d\n', g );
end

#1 = 1  #2 = 3  #3 = 4  #4 = 7  #5 = 11
```

---

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

```
a = 10;
b = 6;
while ( 0 < b )
    r = mod ( a, b );
    a = b;
    b = r;
end

a = 2  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