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Practice Exam
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 = ____?, #3 = ____?, #4 = ____?

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
fprintf ( 'i = %d, b = %d\n', i, b );
```

i = ____? b = ____?

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 = ____?

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 = ____? e = _____?

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 = ____?
```

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 = ____? f = ____? g = ____?
```

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 = ____? f = ____? g = ____?
```

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;
        fprintf ( '%d\n', h );
    end
end
h = _____?

```

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 = _____?, #2 = _____?, #3 = _____?, #4 = _____?, #5 = _____?

```

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 = _____?  b = _____?

```

Honor Code:

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

Student Signature