LOGICAL DATA TYPE

a = true;
true or false
1 for true, 0 for false
RELATIONAL OPERATORS

==, ~==, >, >=, <, <=

ex1)
>> a = 1;
>> b = 1;
>> a == b
>> a ~= b
>> a ~= b

ex2)
>> a = [1 0; -2 1];
>> b = 0;
>> c = a > b;
>> c
LOGIC OPERATORS

&: logical AND
&&: logical AND with shortcut evaluation
|: logical OR
||: logical OR with shortcut evaluation
xor: Logical Exclusive OR
~: logical NOT
IF – ELSEIF – ELSE

if control_expr_1
    Statement 1
    Statement 2
elseif control_expr_2
    Statement1
    Statement2
else
    Statement1
    Statement2
end
**IF – ELSEIF – ELSE**

**ex1)**

```matlab
>> a = 3
>> if a < 4
    b = 10;
  end
>> b
```

**ex2)**

```matlab
>> a = 1;
>> b = 3;
>> c = 2.999;
>> if c > a | c > b
    x = a + b;
  else
    x = a - b;
  end
>> x
```
ex3)

>> a=3.34;
>> if a==pi
    s='a is same with pi';
elseif a < pi
    s = 'a is smaller than pi';
elseif
    s = 'a is larger than pi';
else
    s = 'none';
end

>> s
PROBLEM

Write the MATLAB statements required to calculate $y(t)$ from the equation

$$ y(t) = \begin{cases} -3t^2 + 5, & t \geq 0 \\ 3t^2 + 5, & t < 0 \end{cases} $$

for values of $t$ between $-9$ and $9$ in steps of $0.5$. Use loops and branches to perform this calculation.
switch (switch_expr)
    case {case_expr_1, ...}
        Statement 1
        Statement 2
    case case_expr_2
        Statement 1
        Statement 2
    otherwise
        Statement 1
        Statement 2
end
ex1)

```matlab
>> a=10;
>> switch(a)
    case 8,
        x=8+a;
    case 9,
        x=9+a;
    case 10,
        x=10+a;
    otherwise
        x=0;
end

>> x
```

Problem.
Rewrite ex1) with if-elseif-else statements

```matlab
a = 10;
if a == 8
    x = 8 + a;
elseif a == 9
    x = 9 + a;
elseif a == 10
    x = 10 + a;
else
    x = 0;
end
x
```