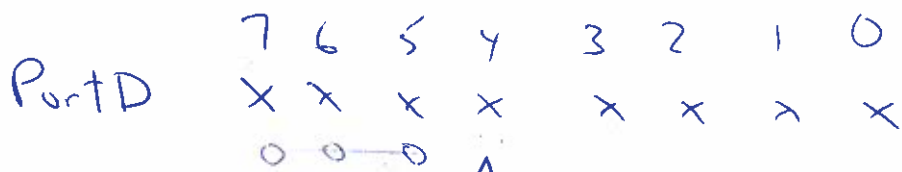


Proj 2, #1



↑
set to 1
Do not change any other bits

$$\text{PORTD} = \text{PORTD} | 16;$$

$$\text{PORTD} = \text{PORTD} | 0x10;$$

prefix 0x means hex

$$\text{PORTD} = \text{PORTD} | (1 \ll 4);$$

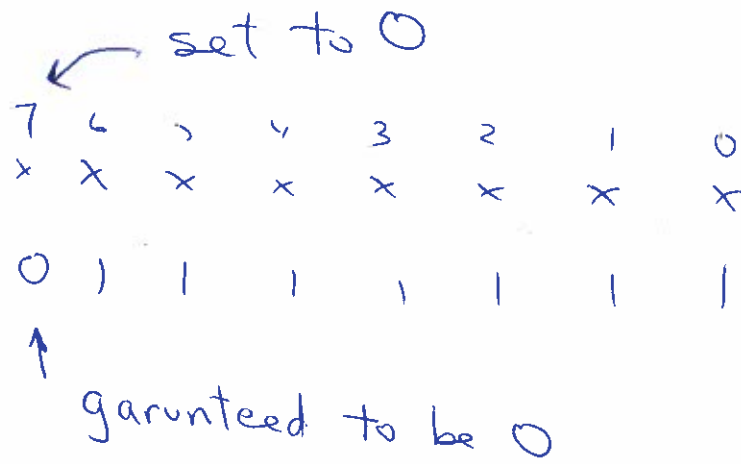
$$\text{PORTD} = \text{PORTD} | 0b00010000;$$

works in AVR studio
does not work in Visual studio

$$\begin{array}{cccccccc}
 & x & x & x & x & x & x & x \\
 OR & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
 \hline
 & x & x & x & 1 & x & x & x
 \end{array}$$

$$\begin{array}{c|c|c}
 A & B & A/B \\
 \hline
 0 & 0 & 0 \\
 0 & 1 & 1 \\
 1 & 0 & 1 \\
 1 & 1 & 1
 \end{array}$$

Proj 2 #2



A	B	A&B
0	0	0
0	1	0
1	0	0
1	1	1

$$PORTC = PORTC \& 127;$$

$$PORTC = PORTC \& 0x7F;$$

$$PORTC = PORTC \& 0b01111111;$$

$$PORTC = PORTC \& \sim(1 \ll 7);$$

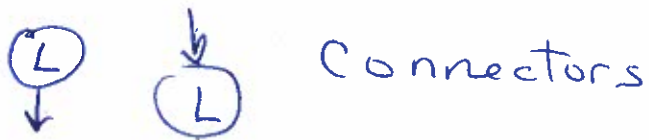
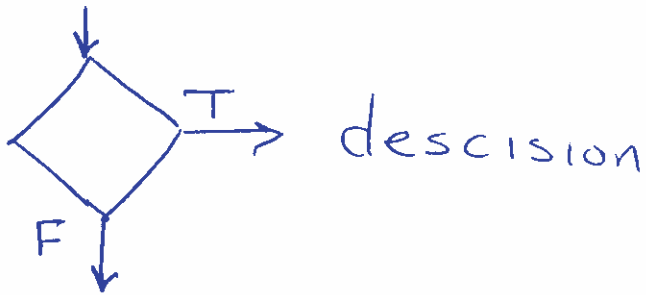
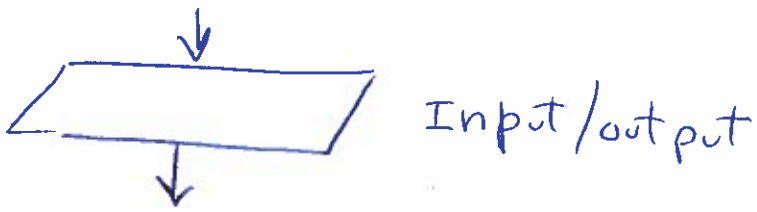
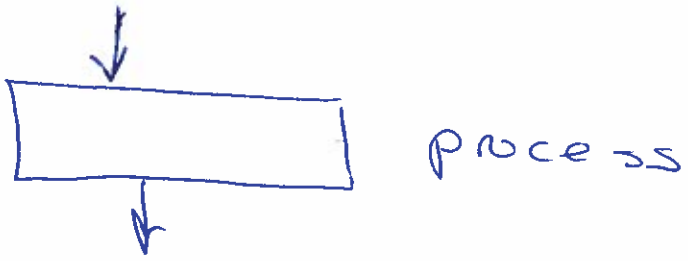
what is $\sim(1 \ll 7)$

$$1 \ll 7 = 1000\ 0000 \text{ (binary)}$$

$$\sim(1 \ll 7) = 0111\ 1111$$

Flowcharting

- graphical way to represent the execution path of a program.



Given h (hours), r (rate), calc g (gross pay)

Time and a half for > 40 hours

Someone works 50 @ \$12/hr

$$= 40 \times 12 + 10 \times 18$$

$$= 480 + 180$$

$$= \$660$$

$$\textcircled{1} \quad g = r * h + (h - 40) * r / 2$$

$$\textcircled{2} \quad g = 40 * r + (h - 40) * r * 1.5$$

Test Formula 1 with 30 hours @ \$10

$$g = 10 * 30 + (30 - 40) * 10 / 2$$

$$= 300 + -50$$

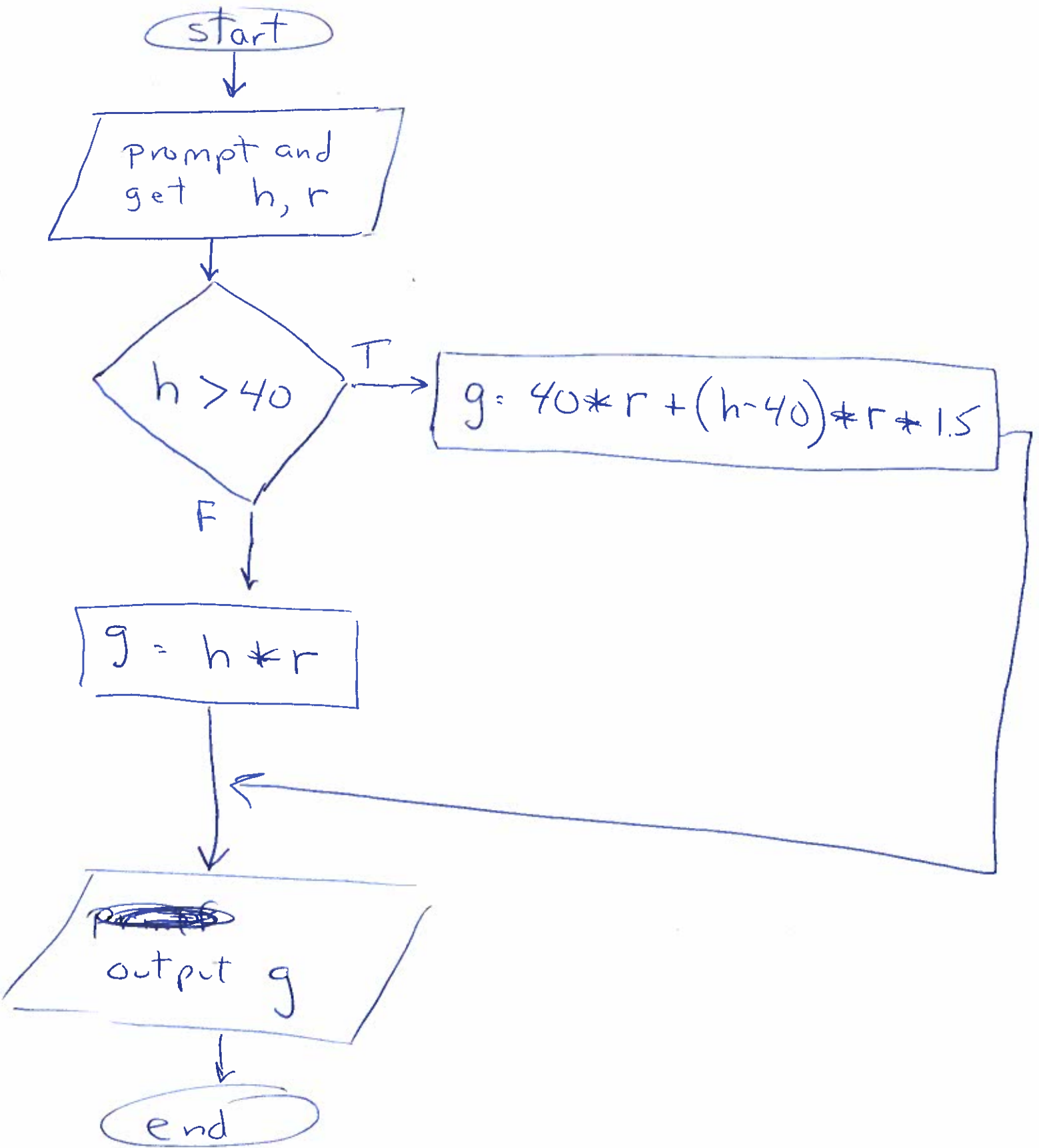
$$= 250$$

Test Formula 2

$$g = ~~10~~ 40 * 10 + (30 - 40) * 10 * 1.5$$

$$= 400 - 150$$

$$= 250$$



```
1 #define _CRT_SECURE_NO_WARNINGS
2 #include <stdio.h>
3
4 int main()
5 {
6     double r, h, g; // rate, hours, grosspay
7     printf("Enter hours worked: ");
8     scanf("%lf", &h);
9     printf("Enter\npay\nrate: ");
10    scanf("%lf", &r);
11    if (h > 40)
12    {
13        g = 40 * r +
14            (h - 40)*r*1.5;
15    }
16    else
17    {
18        g = h * r;
19    }
20    printf("Gross pay is: %.2lf\n", g);
21    return 0;
22 }
```