

Ans 1 10.8 ns~~Ans 1~~ Clock cycle = 27

$$\text{So, total amount of CPU time} = \frac{27}{2.5 \text{ GHz}} = \boxed{10.8 \text{ ns}}$$

Ans 2: 12 bytes (only lw & sw)Ans 3: 1

Ans 4: lui \$t1, 1  
 ori \$t1, \$t1, 9464

Ans 5: \$t2 contains absolute value of \$t1.  
 i.e.  $\$t2 = |\$t1|$

The MIPS code translates to: if ( $t1 > 0$ )  
 return  
 else  
 $t2 = -t1$ .

Ans 6 ~~int function\_increment(int a)  
 {  
 int v;  
 v = 1;  
 if (a != 0)  
 {  
 int t0 = 1;  
 int t1 = t0 & a;  
 }~~

Ans 6

```

int function_increment (int a)
{
    int v;
    v = 1;
    if (a != 0)
    {
        int t0 = 1;
        int t1 = t0 & a;
        if (t1 != 0)
        {
            v = a + 1;
            return v;
        }
        else
        {
            a = a / 2;
            v = function_increment(a);
            v = v * 2;
        }
    }
    return v;
}

```