

2. Assume that Tau is statically scoped, and we have the following Tau program. **main()** is the entry point into the program.

```

void main() {
  int x = 3; int y = 2; int z = 1;
  void f(int 2){
    x--;
    y++;
    z = z + 10;
    g(z);
    print "f:", x+y+z;
  }

  void g(int x){
    x = x*2;
    print "g:", x+y+z ;
  }

  y = x + 10;
  f(y);
  print "main:", x+y+z;
}

```

Handwritten annotations: A circle around the '2' in `f(int 2)` with an arrow pointing to the '2' in `int y = 2;`. A line from the `g(z);` call in `f` points to the `g` function definition. A calculation `13-14-24-48` is written next to the `f` function definition.

"print" displays its parameters, and then a new line. What is the output of the program if Tau uses the

- a) By-value parameter passing mechanism ? (6 pts)

<code>g:</code>	61	$46 + 14 + 1$
<code>f:</code>	39	$2 + 14 + 23$
<code>main:</code>	17	$2 + 14 + 1$

- b) By-reference parameter passing mechanism ? (6 pts)

<code>g:</code>	97	$48 + 48 + 1$
<code>f:</code>	98	$2 + 48 + 48$
<code>main:</code>	51	$2 + 48 + 1$

- c) By-value-result parameter passing mechanism ? (6 pts)

<code>g:</code>	61	$46 + 14 + 1$
<code>f:</code>	62	$2 + 14 + 46$
<code>main:</code>	49	$2 + 46 + 1$