Problem 38. (10 points):

Consider the following incomplete definition of a C struct along with the incomplete code for a function `func` given below.

```
typedef struct node {

  ________________ x;

  ________________ y;

  struct node *next;

  struct node *prev;

} node_t;
```

```
node_t n;

void func() {

  node_t *m;

  m = ________________________;

  m->y /= 16;

  return;
}
```

When this C code was compiled on an IA-32 machine running Linux, the following assembly code was generated for function `func`.

```
func:
  pushl %ebp
  movl n+12,%eax
  movl 16(%eax),%eax
  movl %esp,%ebp
  movl %ebp,%esp
  shrw $4,8(%eax)
  popl %ebp
  ret
```

Given these code fragments, fill in the blanks in the C code given above. Note that there is a unique answer.

The types must be chosen from the following table, assuming the sizes and alignment given.

Type	Size (bytes)	Alignment (bytes)
char	1	1
short	2	2
unsigned short	2	2
int	4	4
unsigned int	4	4
double	8	4