```c
/**
 * pointers.c
 *
 * week 4 section
 * fall 2013
 *
 * pointer practice
 */

#include <stdio.h>

int main(void)
{
    // initialize variables and pointers
    int x = 2, y = 8, z = 12;
    int* ptr_x = &x;
    int* ptr_y = &y;
    int* ptr_z = &z;

    // the basics
    printf("value of x is %i\n", x);
    printf("address of x is %p\n", &x);
    printf("value of ptr_x is %p\n", ptr_x);
    printf("address of ptr_x is %p\n", &ptr_x);
    printf("ptr_x points to the value %i\n", *ptr_x);

    printf("\n");

    // multiplication
    printf("z = x * y;\n");
    z = x * y;
    printf("z = %i\n", z);

    printf("\n");

    // multiplication
    printf("x *= y;\n");
    x *= y;
    printf("x = %i\n", x);

    printf("\n");

    // "go to an address"
    printf("y = *ptr_x;\n");
    y = *ptr_x;
    printf("y = %i\n\n", y);

    // "go to an address" and multiplication
```

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    printf("*ptr_x = y * z;\n");
    *ptr_x = x * y;
    printf("*ptr_x = x = %i\n", *ptr_x);

    printf("\n");

    // "go to an address" and multiplication
    printf("ptr_x = ptr_y;\n");
    ptr_x = ptr_y;
    printf("x = (*ptr_y) * (*ptr_z);\n");
    x = (*ptr_y) * (*ptr_z);
    printf("x = %i\n", x);
}
```

```c
/**
 * trainer.c
 *
 * week 4 section
 * fall 2013
 *
 * train some dolphins!
 */

#include <cs50.h>
#include <stdio.h>
#include <stdlib.h>

// prototype
int* getAge(void);

int main(int argc, char* argv[])
{
    // ensure user entered one and only one command-line argument
    if (argc != 2)
    {
        printf("Usage: ./trainer dolphins\n");
        return 1;
    }

    // convert input to an integer
    int dolphins = atoi(argv[1]);

    // ensure number of dolphins is greater than 0
    if (dolphins < 1)
    {
        printf("Please enter a positive number of dolphins.\n");
        return 2;
    }

    // initalize a new array
    int* dolphin_ages[dolphins];

    // get ages
    for (int i = 0; i < dolphins; i++)
    {
        dolphin_ages[i] = getAge();
    }

    // print out oldest dolphin's age
    int oldest = 0;
    for (int i = 0; i < dolphins; i++)
    {
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        if (*dolphin_ages[i] > oldest)
        {
            oldest = *dolphin_ages[i];
        }
    }
    printf("The oldest dolphin you are training today is %i years old!\n", oldest);
}

/**
 * get the age of a dolphin
 */
int* getAge(void)
{
    // initialze a variable on the heap
    int* age = malloc(sizeof(int));

    // get an age
    do
    {
        printf("How old is the dolphin (> 0)? ");
        *age = GetInt();
    }
    while (*age < 1);

    // return the age
    return age;
}
```