

Name : _____

What is the output of the C program shown below?

```
#include <stdio.h>
void f(int a[], int b) {
    int m=b/2;
    for (int i=0; i<m; i++)
        if (a[i]<a[m+i]) a[i]=a[m+i];
}
int main(void) {
    char str1[]="CRAZY", str2[]="BLANK";
    for (int a=0; a<5; a++) {
        for (int b=0; b<5; b++)
            if (a==b)
                printf("%c", str2[4-a]);
            else if (a+b==4)
                printf("%c", str1[a]);
            else
                printf("*");
        printf("\n");
    }
    int x[8]={17, 15, 16, 25, 18, 22, 19, 21};
    int c=8;
    while (c>1) {
        f(x, c);
        c=c/2;
        printf("(%d)", x[0]);
    }
    return 0;
}
```

Circle one: (Morning Section) (Afternoon Section) CS 100 Exam 2 - Tracing

What is the output of the C program shown below?

```
#include <stdio.h>
int f1(int a, int b) {return a-b; }
int f2(int a, int b) {return a*b; }
int g(int a, int b) {
    if (a%2==0) return f1(a, b);
    else return f2(a, b);
}
int h(int a, int b) {
    while (a!=b)
        if (a>b)
            a=g(a, b);
        else
            b=g(b, a);
    return a;
}
void fuzz(int *a, int *b, int *c) {
    int t = *a + *b + *c;
    *a = t - *a;
    *b = t - *b;
    *c = t - *c;
}
int main(void) {
    printf("A=%d\n", h(24, 16));
    printf("B=%d\n", h(9, 15));
    int x=3, y=4, z=5;
    fuzz(&x, &y, &z);
    printf("x=%d, y=%d, z=%d\n", x, y, z);
    fuzz(&z, &y, &x);
    printf("x=%d, y=%d, z=%d\n", x, y, z);
    return 0;
}
```

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```
#include <stdio.h>
void f(int a[], int b) {
    int m=b/2;
    for (int i=0; i<m; i++)
        if (a[i]<a[m+i]) a[i]=a[m+i];
}
int main(void) {
    char str1[]="QUICK", str2[]="TWINS";
    for (int a=0; a<5; a++) {
        for (int b=0; b<5; b++)
            if (a==b)
                printf("%c", str2[4-a]);
            else if (a+b==4)
                printf("%c", str1[a]);
            else
                printf("-");
        printf("\n");
    }
    int x[8]={42, 40, 41, 50, 43, 47, 44, 46};
    int c=8;
    while (c>1) {
        f(x, c);
        c=c/2;
        printf("(%d)", x[0]);
    }
    return 0;
}
```

Circle one: (Morning Section) (Afternoon Section) CS 100 Exam 2 - Tracing

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```
#include <stdio.h>
int f1(int a, int b) {return a-b; }
int f2(int a, int b) {return a*b; }
int g(int a, int b) {
    if (a%2==0) return f1(a, b);
    else return f2(a, b);
}
int h(int a, int b) {
    while (a!=b)
        if (a>b)
            a=g(a, b);
        else
            b=g(b, a);
    return a;
}
void fuzz(int *a, int *b, int *c) {
    int t = *a + *b + *c;
    *a = t - *a;
    *b = t - *b;
    *c = t - *c;
}
int main(void) {
    printf("a=%d\n", h(14, 8));
    printf("b=%d\n", h(10, 25));
    int x=5, y=6, z=7;
    fuzz(&x, &y, &z);
    printf("x=%d, y=%d, z=%d\n", x, y, z);
    fuzz(&z, &y, &x);
    printf("x=%d, y=%d, z=%d\n", x, y, z);
    return 0;
}
```