

What is the output of the following programs; assume stdio.h is included in all programs.

1. `int main(void)`

```
{  
    int a=-3;  
    a = -a-a+!a;  
    printf("%d\n", a);  
    return 0;  
}
```

2. `int main(void)`

```
{  
    int a=2,b=1,c,d;  
    c = a<b;  
    d = (a>b) && (c<b);  
    printf("c=%d, d=%d\n", c, d);  
    return 0;  
}
```

3. `int main(void)`

```
{  
    int a=9,b=15,c=16,d=12,e,f;  
    e = !(a<b || b<c);  
    f = (a>b) ? a-b: b-a;  
    printf("e=%d, f=%d\n", e, f);  
    return 0;  
}
```

4. `int main(void)`

```
{  
    int a=5;  
    a=6;  
    a=a+5*a;  
    printf("a=%d\n", a);  
    return 0;  
}
```

5. `int main(void)`

```
{  
    int a=5, b=5;  
    printf("%d,%d\t", ++a, b--);  
    printf("%d,%d\t", a, b);  
    printf("%d,%d\t", ++a, b++);  
    printf("%d,%d\n", a, b);  
    return 0;  
}
```

6. `int main(void)`

```
{  
    int x,y,z;  
    x = 8++;  
    y = ++x++;  
    z = (x+y) --;  
    printf("x=%d, y=%d, z=%d\n", x, y);  
}
```

```
return 0;
```

```
}
```

```
7. int main(void)
```

```
{
    int a=4, b=8, c=3, d=9, z;
    z = a++ + ++b * c-- - --d;
    printf("a=%d, b=%d, c=%d, d=%d, z=%d\n", a, b, c, d, z);
    return 0;
}
```

```
8. int main(void)
```

```
{
    int a=14, b, c;
    a=a%5;
    b=a/3;
    c=a/5%3;
    printf("a=%d, b=%d, c=%d\n", a, b, c);
    return 0;
}
```

```
9. int main(void)
```

```
{
    int a=15, b=13, c=16, x, y;
    x = a-3%2+c*2/4%2+b/4;
    y = a = b+5-b+9/3;
    printf("x=%d, y=%d\n", x, y);
    return 0;
}
```

```
10. int main(void)
```

```
{
    int x, y, z, k=10;
    k+=(x=5, y=x+2, z=x+y);
    printf("x=%d, y=%d, z=%d, k=%d\n", x, y, z, k);
    return 0;
}
```

```
11. int main(void)
```

```
{
    float b;
    b=15/2;
    printf("%f\t", b);
    b=(float)15/2 + (15/2);
    printf("%f\n", b);
    return 0;
}
```

```
12. int main(void)
```

```
{
    int a=9;
    char ch='A';
    a = a+ch+24;
    printf("%d, %c\t%d, %c\n", ch, ch, a, a);
    return 0;
}
```

```
13. int main(void)
```

```
{
    int a, b, c, d;
    a=b=c=d=4;
}
```

```

a*=b+1;
c+=d*=3;
printf("a=%d, c=%d\n",a,c);
return 0;
}

```

```

14. int main(void)
{
    int a=5,b=10,temp;
    temp=a, a=b, b=temp;
    printf("a=%d, b=%d\n",a,b);
    return 0;
}

```

```

15. int main(void)
{
    int a=10, b=3, max;
    a>b ? max=a : max=b;
    printf("%d\n",max);
    return 0;
}

```

```

16. int main(void)
{
    int a=5, b=6;
    printf("%d\t",a=b);
    printf("%d\t",a==b);
    printf("%d %d\n",a,b);
    return 0;
}

```

```

17. int main(void)
{
    int a=3,b=4,c=3,d=4,x,y;
    x = (a=5) && (b=7);
    y = (c=5) || (d=8);
    printf("a=%d, b=%d, c=%d, d=%d, x=%d, y=%d\n",a,b,c,d,x,y);
    x = (a==6) && (b=9);
    y = (c==6) || (d=10);
    printf("a=%d, b=%d, c=%d, d=%d, x=%d, y=%d\n",a,b,c,d,x,y);
    return 0;
}

```

```

18. int main(void)
{
    int a=10;
    a=a++;
    a = a++ * a--;
    printf("%d\n",a);
    printf("%d\n",a++ * a++);
    return 0;
}

```

```

19. int main(void)
{
    int a=2, b=2, x, y;
    x = 4*(++a * 2 + 3);
    y = 4*(b++ * 2 + 3);
    printf("a=%d, b=%d, x=%d, y=%d\n",a,b,x,y);
    return 0;
}

```