

I.

	Cost	# of Times
<code>sum = 0;</code>	C_1	1
<code>for (i = 0; i < n; i++)</code>	C_2	$(n - 0 - 1 + 1) + 1 = n + 1$
<code>sum++;</code>	C_3	n

$$T(n) = C_1 + C_2(n+1) + C_3(n)$$

II.

	Cost	# of Times
<code>sum = 0;</code>	C_1	1
<code>for (i = 0; i < n; i++)</code>	C_2	$(n - 0 - 1 + 1) + 1 = n + 1$
<code>for (j = 0; j < n; j++)</code>	C_3	$(n)(n + 1) = n^2 + n$
<code>sum++;</code>	C_4	n^2

$$T(n) = C_1 + C_2(n + 1) + C_3(n^2 + n) + C_4(n^2)$$

III.

	Cost	# of Times
<code>sum = 0;</code>	C_1	1
<code>for (i = 0; i < n; i++)</code>	C_2	$(n - 0 - 1 + 1) + 1 = n + 1$
<code>for (j = 0; j < n * n; j++)</code>	C_3	$(n)(n^2 + 1) = n^3 + n$

sum++;	C_4	n^3
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$$T(n) = C_1 + C_2(n + 1) + C_3(n^3 + n) + C_4(n^3)$$

IV.

	Cost	# of Times
sum = 0;	C_1	1
for (i = 0; i < n; i++)	C_2	$(n - 0 - 1 + 1) + 1 = n + 1$
for (j = 0; j < i; j++)	C_3	$1 + 2 + \dots + (n + 1) = n((n + 1)/2)$
sum++;	C_4	$1 + 2 + \dots + n = n(((n + 1)/2) - 1)$

$$T(n) = C_1 + C_2(n + 1) + C_3n((n + 1)/2) + C_4n(((n + 1)/2) - 1)$$

V.

	Cost	# of Times
sum = 0;	C_1	1
for (i = 0; i < n; i++)	C_2	$(n - 0 - 1 + 1) + 1 = n + 1$
for (j = 0; j < i * i; j++)	C_3	$1^2 + 2^2 + \dots + (n + 1)^2 = (n((n + 1)/2))^2$
for (k = 0; k < j; k++)	C_4	$(n)((n((n)/2))^2)(n + 2)$
sum++;	C_5	$(n)((n((n)/2))^2)(n + 1)$

$$T(n) = C_1 + C_2(n + 1) + C_3(n((n + 1)/2))^2 + C_4(n)((n((n)/2))^2)(n + 2) + C_5(n)((n((n)/2))^2)(n + 1)$$

Question 3 part f:

The plots do not appear to correspond with my answers for part A for the most part. Plot 1 is linear, plot 2 appears to be quadratic, but afterwards they all begin to resemble each other, with the same quadratic-looking line. Graph 6 looks to similar to the previous graphs to call it anything but quadratic.