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Functions 函數:

1 若 n=14, 求以下表示式的值。

	Expressions 表示式	Value 值		Expressions 表示式	Value 值
A	20 – 2 * (n / 2)		K	ceil (n / 5.0)	
B	5 – n % 4		L	floor (n / 5.0)	
C	n % 10 + 1		M	round (n / 5.0) * 5	
D	(n+1) % 5		N	'a' – 'A'	
E	n – (n / 5) * 5		O	sqrt (pow(-3,2))	
F	n % 5		P	abs (10 - 100)	
G	n / 5		Q	abs ('@' – '6')	
H	n – n % 5		R	'E' – 'A'	
I	n / 5.0		S	(char) ('f' – 'a' + 'A')	
J	n / 100		T	(int) floor(1234.9) /100 *100	

Boolean expressions 布爾表示式

2. 求以下表示式的值。 假如 int A=3, B=4, C=5;

	Boolean expressions 布爾表示式 (1=TRUE / 0=FALSE)	Result
A	`printf ("%i", (−6 > 5));`	
B	`printf ("%i", ((A+6) > (C+4)));`	
C	`printf ("%i", !(A+B<0));`	
D	`printf ("%i", (3>3) || (C>0));`	
E	`printf ("%i", (A!=10) && (C<=7));`	
F	`printf ("%i", ('A'=='a'));`	
G	`if('A'=='a') printf("1"); else printf("0");`	
H	`printf ("%i", ('A'=='a')?1:0);`	
I	`printf ("%i", strcmp("AB","EF"));`	
J	`printf ("%i", strcmp("ABC","ABCD"));`	
K	`printf ("%i", strcmp("LEE","LI"));`	
L	`printf ("%i", strcmp("Lee","LI"));`	
M	`printf ("%i", strcmp("Lee","Lee"));`	
N	`if(strcmp("The","the")) x=1; else x=0;` `printf ("%i", x);`	
O	`char gender='X';` `if(gender=='M') puts("男"); else puts("女");`	

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Assignment statements 賦值句子

1. 若 a = 5, b = 3, c = 2, 求a, b, c的最終值?

	執行以下C句子	a	b	c

A	c = a;
	a = b;
	b = c;			

B	c = a;
	b = c;
	a = b;			

C	a = b;
	b = a;
	c = a+b;			

D	a = b*2;
	b = a*2;
	c = b*c;			

2. 若 a = 4, b = 2, c = 1, 求a, b, c的最終值?

	執行以下C句子	a	b	c

A	c = a+b;
	b = a+c;
	a = b+c;			

B	c = a+b-c;
	b = a+b-c;
	a = a+b-c;			

C	a = b;
	b = a;
	c = a+b;			

3 執行以下C句子，並寫下輸出。 int a=10, b=20;

	C句子	輸出
A	printf ("A+B = A—B");	
B	printf ("A+B = %i—%i", a, b);	
C	printf ("A = %i B = %i", a+b, a—b);	

4 寫出以下x值的可能範圍

	C句子	x值的可能範圍
A	x = rand();	
B	x = rand()%10;	
C	x = rand()%10 +5;	
D	x = rand()%5 +rand()%4;	
E	x = rand()%5 —rand()%4;	
F	x = abs(rand()%5 —rand()%4);	

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While-loops

1. 寫出下列程式所產生的輸出

	程式Program statements	輸出Output

A	`i=0;`
	`while (i<=5){`
	`  i=i+1;`
	`  printf ("%i", i);`
	`}`	

B	`i=0;`
	`while (i<5){`
	`  i++;`
	`  printf ("%i", i);`
	`}`	

C	`i=0;`
	`while (i<=5){`
	`  printf ("%i", i);`
	`  ++i;`
	`}`	

D	`n=1; sum = 0;`
	`while (sum<100){`
	`  sum += n;`
	`  n+=20;`
	`}`
	`printf ("%i %i", n, sum);`	

E	`n = 0;`
	`while (n<5)`
	`  printf ("%i\t", n);`
	`printf (" #");`	

F	`n = 1;`
	`while (n<=5){`
	`  n = n+1;`
	`  printf ("%2i", n);`
	`}`	

G	`n = 1;`
	`while (n<5)`
	`  printf ("%2i", n++);`	

H	`n = 10;`
	`while (n<5){`
	`  n = n-1;`
	`  printf ("%02i", n);`
	`}`
	`printf (" #");`	

I	`x = 1;`
	`while (x<=10) x = x+1;`
	`printf ("%i\n", x);`	

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While-loops

1. 寫出下列程式所產生的輸出

	程式 Program statements	輸出 Output

A	`n = 10;`
	`while (n>5){`
	`  n = n-1;`
	`  printf ("%2d", n);`
	`}`
	`printf (" #");`	

B	`scanf ("%i", &n);  // input = 1234`
	`while (n>0){`
	`  printf ("%3i", n%10);`
	`  n = n/10;`
	`}`
	`printf ("#");`	

C	`scanf ("%f", &n);  // input = 0.37`
	`printf ("0.");`
	`c = 0;`
	`while (n>0 && c<4){`
	`  n = n*2;`
	`  c = c+1;`
	`  if(n>=1) printf ("1");`
	`  else printf ("0");`
	`  if(n>=1) n = n-1;`
	`}`	

D	`scanf ("%i", &x);  // input = 1234`
	`n = 0; y = x; d = 1;`
	
	`while (y>=10){`
	`  n++;`
	`  y = y / 10;`
	`  d = d * 10;`
	`  printf ("%5d %8d %8d \n", n,y,d);`
	`}`	

E	`a = 50; b = 14; c = 999;`
	
	`while (c>0){`
	`  c = a%b;`
	
	`  if(c>0){`
	`  a = b;`
	`  b = c;`
	`  }`
	`}`
	`printf ("The GCD is %i \n",  b);`	

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While-loops

1. 寫出下列程式所產生的輸出

	程式	輸出

A	`scanf ("%i", &n);  // input = 9`
	`c = 0;`
	`while (n>0){`
	`  if((n>7) || ((n>0) && (n<4)))`
	`  n = n-8;`
	`  else`
	`  n = n+10;`
	`  printf ("%3i ", n)`
	`  c++;`
	`}`
	`printf ("%3i \n", c);`	

B	`prin = 121000;  // principal(本金)`
	`pay = 12000; rate = 1.01; n = 0;`
	
	`while (prin > 0){`
	`  n++;`
	`  prin = prin * rate – pay;`
	`  prin = floor (prin / 1000) * 1000;`
	`  if(n>9)`
	`  printf ("%3d %10.0f \n", n, prin);`
	`}`	

C	`scanf ("%i", &x);  // input = 1924`
	`n = 1; y = x; d = 1;`
	
	`while (y>=10){`
	`  n++;`
	`  y = y / 10;`
	`  d = d * 10;`
	`}`
	`for(k=1; k<=n; k++){`
	`  printf ("%i \n", x/d);`
	`  x = x % d;`
	`  d = d / 10;`
	`}`
	`printf ("\n");`	

D	`n = ???`	`n = 15;`	`n = 19;`

	`char S[20] = "123Chan45Tai67Man89";`
	`printf ("#");`
	`while (n<19){`
	`  n++;`
	`  printf ("%c ", S[n]);`
	`}`		

E	`n = ???`	`n = 1;`	`n = 10;`

	`char S[20] = "123Chan45Tai67Man89";`
	`while (n<19 && S[n]<'a') n++;`
	`printf ("%i \n", n);`		

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Iterations 迴路 (For-loops)

1 求以下C句子的輸出

	C句子	輸出
A	`for(k=0; k<5; k++);` `  printf ("%d", k);`	

B	`for(k=5; k<0; k++)`
	`  printf ("%5d", k);`
	`printf ("  #\n");`	

C	`for(k=1; k<=4; k++)` `  printf ("%5d", k);`	

D	`a = 1; b = 0;`
	`for(k=1; k<6; k++){`
	`  c = a+b;`
	`  a = b;`
	`  b = c;`
	`  printf ("%5d", c);`
	`}`
	`printf ("  #");`	

E	`y = 1;`
	`for(k=0; k<3; k++){`
	`  printf ("%5d", y);`
	`  y = y*2;`
	`}`
	`printf ("%i \n", y);`	

F	`y = 1;`
	`for(k=-1; k<=1; k++)`
	`  printf ("%5d", y);`
	`  y = y*2;`
	`printf ("%i \n", y);`	

G	`n = 10;`
	`for(k=1; k<=n; k++){`
	`  printf ("%5d", k);`
	`  if(k%7==0)  printf ("\n");`
	`}`	

H	`d1 = 5;`
	`printf ("%*s",  d1*5, " ");`
	
	`for(k=1; k<=10; k++){`
	`  printf ("%5d", k);`
	`  if((d1+k)%7==0)`
	`  printf ("\n");`
	`}`	

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Iterations 迴路 (For-loops)

1. 求以下C句子的輸出

	C句子	輸出
A	`for(k=3; k<=7; k++)` `  printf ("%3d",  9-abs(k-5));`	

B	`ch = '@'; n = 5;`
	`for(k=0; k<n; k++)`
	`  printf ("%2c", ch);`
	`  printf ("\n#");`	

C	`for(ch='A'; ch<'D'; ch++)` `  printf ("%i %4c \n", ch, ch);`	

D	`n = 12.4;`
	`for(k=10; k<=floor(n); k++)`
	`  printf ("%5c",  (k+ 'A'));`	

E	`x = 1;`
	`for(k=2; k>=-2; k--)`
	`  x = x * k;`
	`printf ("%i \n", x);`	

F	`sum = 0;`
	`for(k=1; k<6; k++)`
	`  sum = pow(k,2);`
	`printf ("%i\n", sum);`	

G	`sum = 0;`
	`for(k=1; k<6; k++)`
	`  sum += pow(k,2);`
	`printf ("Sum = %i\n",  sum);`	

H	`for(k=-2; k<=2; k++)` `  printf ("%5d", 10-k);`	

I	`for(k=1; k<=4; k++)` `  printf ("%5d", k);`	
J	`for(k=65; k<=67; k++)` `  printf ("%i %3c", k, k);`	
K	`for(k=1; k<4; k++)` `  printf ("%i %*c \n", k,k,'#');`	
L	`for(k=0; k<4; k++)` `  printf ("%i", k*2+1);`	

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Iterations 迴路 (For-loops) 求以下C句子的輸出

	C句子	輸出

A	`x = 0;`
	`for(k=-2; k<=2; k++)`
	`  x = x + abs(k);`
	`printf ("%i \n", x);`	

B	`x = 1;`
	`for(k=2; k>=-2; k--)`
	`  x = 2*(x-1) +k;`
	`printf ("%i \n", x);`	

C	`x = 1;`
	`for(k=5; k>1; k--)`
	`  x = 2*x +1;`
	`printf ("%i \n", x);`	

D	`for(k=0; k<3; k++){`
	`  printf ("O");`
	`  printf ("X\n");`
	`}`	

E	`for(k=0; k<3; k++){`
	`  printf ("O\n");`
	`  printf ("X");`
	`}`	

F	`for(k=0; k<3; k++)`
	`  printf ("O");`
	`  printf ("X");`	

G	`for(k=0; k>3; k--);`
	`  printf ("O");`
	`  printf ("X");`	

H	`for(k=1; k<=3; k++)` `  printf ("6 x %i = %i \n", k, 5*k);`	
I	`for(k=1; k<=3; k++)` `  printf ("%i \n", pow(2*k,2));`	

J	`for(k=1; k<=5; k++)`
	`  if(k%2==1) printf ("%i", k);`
	`  else printf ("%i", -k);`	

K	`for(ch1='A'; ch1<='B'; ch1++){`
	`  for(ch2='A'; ch1<='B'; ch2++)`
	`  printf ("%c %c \n", ch1,ch2);`
	`  printf ("\n");`
	`}`	

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For-loops

1. To find the sum of the first n consecutive integers (i.e. sum = 1 + 2 + 3 + ... + n) 求 n 個連續數之和

Program segments	Output
do{	Q: Enter a positive # n (>0) : 4
printf ("Q: Enter a positive # n (>0) : ");	A: Sum = 1 + 2 + 3 + 4 = 10
scanf ("%i", &n);	
sum =	Q: Enter a positive # n (>0) : 9
printf ("A: Sum = ");	A: Sum = 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 = 45
	…
for(k=1;	Q: Enter a positive # n (>0) : 0
sum =	A: Bye!
if(k<n) printf	
else printf	
}	
printf ("%i\n\n", sum);	
}while (n>0);	
printf ("A: Bye\n!");	

2. To find the sum of the first n odd integers (i.e. sum = 1 + 3 + 5 + ... + 2n-1) 求 n 個連續單數之和

Program segments	Output
do{	Q: Enter a +ve integer n (>0) : 6
printf ("Q: Enter a +ve integer n (>0) : ");	A: Sum = 1 + 3 + 5 + 7 + 9 + 11 = 36
scanf ("%i", &n);	
sum =	Q: Enter a +ve integer n (>0) : 7
printf ("A: Sum = ");	A: Sum = 1 + 3 + 5 + 7 + 9 + 11 + 13 = 49
	…
for(k=1;	Q: Enter a +ve integer n (>0) : 0
sum =	A: Bye!
if(k<n) printf	
else printf	
}	
printf ("%i\n\n", sum);	
}while (n>0);	
printf ("A: Bye!\n");	

3. To calculate the factorial (n!) of n, where n! = n × (n-1) × ...× 3 × 2 × 1. 求 n 個連續數之積

Program segments	Output
do{	Q: Enter a pos integer n (>0) : 10
printf ("Q: Enter a pos integer n (>0) : ");	A: 10! = 10×9×8×7×6×5×4×3×2×1 = 3628800
scanf ("%i", &n);	
factorial =	Q: Enter a pos integer n (>0) : 5
printf ("A: %i ! = ", n);	A: 5! = 5×4×3×2×1 = 120
for(k=	…
factorial =	
printf ×	
}	
printf (" 1 = %.0f \n",	
}while (n>0);	

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Iterations (Nested For-loops)

	Program segments	Output

A	`sum = 0;`
	`for(i=1; i<=4; i++)`
	`  for(j=1; j<=3; j++)`
	`  sum = sum + i*j;`
	`printf ("%i", sum);`	

B	`for(i=1; i<=2; i++)`
	`  for(j=2; j<=3; j++)`
	`  printf ("%i - %i \n", i, j);`	

C	`for(i=1; i<=2; i++)`
	`  for(j=3; j>i; j--)`
	`  printf ("%i + %i \n", i, j);`	

D	`for(i=1; i<=3; i++){`
	`  printf ("%c", i+64);`
	`  for(j=1; j<=3; j++)`
	`  printf ("%3d", j);`
	`  printf ("\n");`
	`}`	

E	`char A[] = "1234";`
	`sum = 0;`
	`for(n=2; n<= strlen(A); n++)`
	`  sum = sum + A[n] * (5-n);`
	`printf ("%i\n", sum);`	

已知: int score[40][3];
假設輸入是: 1,2,3, ..., 120

F	`for(st=1; st<=40; st++){`
	`  for(subj=1; subj<=3; subj++)`
	`  scanf ( "%i", &score [st][subj]);`
	`}`
	`printf ("%i", score [2][1]);`	

G	`for(subj=1; subj<=3; subj++){`
	`  for(st=1; st<=40; st++)`
	`  scanf ( "%i", &score [st][subj]);`
	`}`
	`printf ("%i", score [2][1]);`	

H	`for(st=1; st<=40; st++){`
	`  for(subj=1; subj<=3; subj++)`
	`  scanf ( "%i", &score [subj][st]);`
	`}`
	`printf ("%i", score [2][1]);`	

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For-loops

1. To display the alphabets (A to Z) on the screen. 顯示字母

Program segments	Output
printf ("Q: From alphabet (A-Z) : "); scanf ("%c", &frCh);	Q: From alphabet (A-Z) : C
printf (" To alphabet (A-Z) : "); scanf ("%c", &toCh);	To alphabet (A-Z) : K
printf ("A: ");	A: CDEFGHIJK
for (ch= printf ("%c", ch);	
printf ("\n");	

2. To display the alphabets (A to Z) on the screen. 顯示字母

Program segments	Output
printf ("Q:From alphabet (1-26) : "); scanf ("%i", &x);	Q: From alphabet (1-26) : 3
printf (" To alphabet (1-26) : "); scanf ("%i", &y);	To alphabet (1-26) : 11
printf ("A: ");	A: CDEFGHIJK
for (n= printf ("%c",	
printf ("\n");	

3. To display a triangle of stars (asterisks) on the screen with its vertex pointing upward.

Program segments		Output

for(x=1;
  for(y=1;
  printf ("* ");
  printf ("\n");
}
	for(x=5;
	  for(y=1;
	  printf ("* ");
	  printf ("\n");
	}
		
		*
		* *
		* * *
		* * * *
		* * * * *

4. To display a triangle of stars (asterisks) on the screen with its vertex pointing downward.

Program segments		Output

for(x=5;
  for(y=1;
  printf ("* ");
  printf ("\n");
}
	for(x=1;
	  for(y=1;
	  printf ("* ");
	  printf ("\n");
	}
		
		* * * * *
		* * * *
		* * *
		* *
		*

5. To display a triangle of stars (asterisks) on the screen with its vertex pointing downward.

Program segments	Output

for(x=5;
  printf ("%*s" ,
 	
  for(y=1;
  printf ("* ");
  printf ("\n");
}
	
	* * * * * * * * *
	  * * * * * * *
	  * * * * *
	  * * *
	  *

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For-loops

1. To display the alphabets (A to Z) on the screen. 顯示字母

Program segments	Output
`printf ("Q: From alphabet (A-Z) : "); scanf ("%c", &frCh);`	Q: From alphabet (A-Z) : C
`printf ("  To  alphabet (A-Z) : "); scanf ("%c", &toCh);`	To alphabet (A-Z) : K
`printf ("A: ");`	A: CDEFGHIJK
`if`	
`  for(ch=  printf ("%c", ch);`	Q: From alphabet (A-Z) : K
`else`	To alphabet (A-Z) : C
`  for(ch=  printf ("%c", ch);`	A: CDEFGHIJK
`printf ("\n");`	

2. To display a triangle of stars (asterisks) on the screen with its vertex pointing upward.

Program segments		Output 輸出

`for(x=1; x<=5; x++){`
`  printf ("%*s", (5-x)*2, "");`
`  for(y=1;`
`  printf ("* ");`
`  printf ("\n");`
`}`
	`for(x=5; x>=1; x--){`
	`  printf ("%*s",`
	`  for(y=1;`
	`  printf ("* ");`
	`  printf ("\n");`
	`}`
		
		`  *`
		`  * *`
		`  * * *`
		`  * * * *`
		`* * * * *`

3. To display a triangle of stars (asterisks) on the screen with its vertex pointing downward.

Program segments		Output 輸出

`for(x=5;`
`  printf ("%*s",`
`  for(y=1;`
`  printf ("* ");`
`  printf ("\n");`
`}`
	`for(x=1;`
	`  printf ("%*s",`
	`  for(y=1;`
	`  printf ("* ");`
	`  printf ("\n");`
	`}`
		
		`* * * * *`
		`  * * * *`
		`  * * *`
		`  * *`
		`  *`

4. To display a triangle of stars (asterisks) on the screen with its vertex pointing downward.

Program segments	Output 輸出

`for(x=1;`
`  printf ("%*s" ,`
`  for(y=1;`
`  printf ("* ");`
`  printf ("\n");`
`}`
	
	`  *`
	`  * * *`
	`  * * * * *`
	`  * * * * * * *`
	`* * * * * * * * *`

5. To accept user input via keyboard until valid.

Program segments	Output 輸出

`do{`
`  printf ("Q: Enter choice (A-D,Q) ? ");`
`  scanf`
`  opt =`
 	
`  valid = ((opt=='Q')`
`  if(!valid) printf ("A: Invalid input!\n");`
`}while (!valid);`
	Q: Enter choice (A-D,Q) ? Z
	A: Invalid input!
	...
	Q: Enter choice (A-D,Q) ? A
	A: OK!

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For-loops + Array

1 What is the output after the execution of the following program segments? 有什麼輸出

	Program segments	Output

A	`for(k=1; k<=5; k++){`
	`  A[k] = k * 2 - 1;`
	`  printf ("%i", A[k]);`
	`}`	

B	`for(k=1; k<=5; k++){`
	`  A[k] = (k*5) % 3 + 1;`
	`  printf ("%3d", A[k]);`
	`  if(k%3==0) printf ("\n");`
	`}`	

C	`A[1] = 5; A[2] = 1; A[3] = 4;`
	`A[4] = 3; A[5] = 2;`
	
	`for(k=1; k<=5; k++)`
	`  if(A[k]>A[6-k])`
	`  printf ("%3d", A[k]);`	

D	`for(x=0; x<=3; x++)`
	`  for(y=1; y<=4; y++)`
	`  A[4*x+y] = x + y*2;`
	`printf ("%i", A[11]);`	

E	`for(n=1; n<=10; n++) A[n] = 10-n;` `printf ("%i", A[4]);`	

F	`for(n=1; n<=10; n++) A[n] = n;`
	`for(n=1; n<=5; n++) A[n] = A[11-n];`
	`printf ("%i", A[4]);`	

G	`for(n=1; n<=5; n++) A[n] = n;`
	`for(n=1; n<=4; n++) A[n] = A[n+1];`
	`for(n=1; n<=5; n++) printf ("%i", A[n]);`	

H	`for(n=1; n<=5; n++) A[n] = n;`
	`for(n=2; n<=5; n++) A[n] = A[n-1];`
	`for(n=1; n<=5; n++) printf ("%i", A[n]);`	

I	`for(n=1; n<=5; n++) A[n] = n;`
	`for(n=4; n>=1; n--) A[n+1] = A[n];`
	`for(n=1; n<=5; n++) printf ("%i", A[n]);`	

J	`for(n=1; n<=5; n++) A[n] = n;`
	`for(n=4; n>=1; n--) A[n] = A[n+1];`
	`for(n=1; n<=5; n++) printf ("%i", A[n]);`	

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For-loops + Array

Write program segments to perform the same tasks as shown on the right. 改寫句子

int A[10];

1. To find the sum of all elements of the array A[]. 陣列A[]所有元素的總和

sum = 0;
for(n=1; n<
  sum =
	sum = A[1] + A[2] + ... + A[9];

2. To find the product of all elements of the array A[ ]. 陣列A[]所有元素的積

product = for(n=1; n< product =	product = A[1] * A[2] * ... * A[9];

3. To accept inputs from user via keyboard and put the input values into the element of the array A[ ].

for(n=1; n< scanf ("%i",	scanf ("%i \n", A[1]); ... scanf ("%i \n", A[9]);

4. To output the value stored in each element of the array A[ ].

for(n=1; n< printf ("%i \n",	printf ("%i \n", A[1]); ... printf ("%i \n", A[9]);

5. To reverse 倒轉 the values of the elements in the array A[ ]. (i.e. swap the values of A[1] and A[9], ...)

for(n=1; n<
  temp =
  A[n] =
  A
}
	A[1] ↔ A[9] 對換
	A[2] ↔ A[8]
	A[3] ↔ A[7]
	A[4] ↔ A[6]

6. To shift up/down the values of the elements in array A[ ].

for(n=1; n< A[n] =	A[1] = A[2]; { shift up 上移 } A[2] = A[3]; ... A[8] = A[9]
for(n= A[n] =	... A[5] = A[4]; { shift down 下移 } ...

7. To rotate up/down the values of the elements in array A[ ].

temp = for(n=1; n<=8; n++) A[n] = A[9] =	A[1] = A[2]; { rotate up } A[2] = A[3]; ... A[9] = A[1];
temp = for(n= A[n] = A[1] =	... A[5] = A[4]; { rotate down } ... A[1] = A[9];

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Sub-programs

1. 寫出下列程式所產生的輸出

程式碼 Program listing	

`#include <stdio.h>`
`int A, B, C;`
 	
`void p1(){`
`  C = A+B;`
`}`
 	
`void p2 (int X, int Y){`
`  float C = X+Y;`
`}`
 	
`void p3 (int X, int Y){`
`  C = X+Y;`
`  X = Y = 0;`
`}`
	`void p4 (int *X, int *Y){`
	`  if(*X==*Y) *X+=*Y;`
	`  if(*X<*Y) *X=*Y;`
	`  else *Y=*X;`
	`}`
	
	`void p5 (int *X, int *Y){`
	`  if(*X==*Y) *X+=*Y;`
	`  else  if(*X<*Y) *X=*Y;`
	`  else *Y=*X;`
	`}`
	
	`void p6 (int *X, int *Y, int *Z){`
	`  int T=*X;`
	`  *X=*Y; *Y=*Z; *Z=T;`
	`}`
	
	`main(){. . .`
	`}`

	程式碼 Program statements	輸出 Output

a	`A=1; B=3; C=5;`
	`p1();`
	`printf ("%i %3i %3i \n", A, B, C);`	

b	`A=1; B=3; C=5;`
	`p2(A,B);`
	`printf ("%i %3i %3i \n", A, B, C);`	

c	`A=1; B=3; C=5;`
	`p3(A,B); printf ("%i %3i %3i \n", A,B,C);`
	`p3(B,C); printf ("%i %3i %3i \n", A,B,C);`	

d	`A=1; B=3; C=5;`
	`p4(A,B); printf ("%i %3i %3i \n", A,B,C);`
	`p4(C,B); printf ("%i %3i %3i \n", A,B,C);`	

e	`A=1; B=3; C=5;`
	`p5(B,A); printf ("%i %3i %3i \n", A,B,C);`
	`p5(A,B); printf ("%i %3i %3i \n", A,B,C);`	

f	`A=1; B=3; C=5;`
	`p6(A,B,C); printf ("%i %3i %3i \n", A,B,C);`
	`p6(C,B,A); printf ("%i %3i %3i \n", A,B,C);`	

g	`A=1; B=3; C=5;`
	`p6(B,C,A); printf ("%i %3i %3i \n", A, B,C);`
	`p6(A,B,C); printf ("%i %3i %3i \n", A, B,);`	