

**Formatted Printing: printf**

Do NOT write on this test. Record all answers on the bubble sheet. **Closed book. No notes.** Work strictly from memory. **No calculators. No time limit. Scratch paper okay.**

On the following printf questions you are given a list of inputs. For each problem line determine which printf statement created the accompanying outputs. (   means space.)

Which of these printf statements created the outputs shown for each problem below? (x is int x;)

- (A) printf("uuuuu%+3d",x); (D) printf("uu%-3d",x); (G) printf("%06d",x);  
 (B) printf("uuu%+5d",x); (E) printf("uu%0+4d",x); (H) printf("%-8d",x);  
 (C) printf("uu%+6d",x); (F) printf("uu%04d",x); (I) printf("%+6d",x);

inputs:	<u>8</u>	<u>-9</u>	<u>1559120229</u>	<u>-1785125010</u>
1/1p.	uu8uuuuu	uu-9uuuu	uu1559120229uu	uu-1785125010uu
2/1p.	uuuuuu+8	uuuuuu-9	uuu+1559120229	uuu-1785125010
3/1p.	uuuuuu+8	uuuuuu-9	uuuuu+1559120229	uuuuu-1785125010
4/1p.	uu+008uu	uu-009uu	uu+1559120229uu	uu-1785125010uu
5/1p.	uu0008uu	uu-009uu	uu1559120229uu	uu-1785125010uu
6/1p.	uu00008u	u-00009u	uu1559120229u	u-1785125010u
7/1p.	u8uuuuuu	-9uuuuuu	u1559120229	-1785125010
8/1p.	uu+8uuuu	uu-9uuuu	uu+1559120229	uu-1785125010

Which of these printf statements created the outputs shown for each problem below? (x is int x;)

- (A) printf("uuuuu%03d",x); (D) printf("uu%6d",x); (G) printf("%09d",x);  
 (B) printf("uu%u07d",x); (E) printf("u%u08d",x); (H) printf("%u9d",x);  
 (C) printf("uu%0+5d",x); (F) printf("u%8d",x); (I) printf("%-9d",x);

inputs:	<u>6</u>	<u>-7</u>	<u>1725920390</u>	<u>-1457930201</u>
9/1p.	uuuuuuuu6	uuuuuuuu-7	u1725920390	-1457930201
10/1p.	uu+0006uu	uu-0007uu	uu+1725920390uu	uu-1457930201uu
11/1p.	uuuuuuuu6	uuuuuuuu-7	u1725920390	u-1457930201
12/1p.	6uuuuuuuu	-7uuuuuuuu	1725920390	-1457930201
13/1p.	uu000006	u-000007	uu1725920390	u-1457930201
14/1p.	uuuuuu06u	uuuuuu-07u	uuuuuu1725920390u	uuuuuu-1457930201u
15/1p.	uuu000006	uu-000007	uuu1725920390	uu-1457930201
16/1p.	u00000006	-00000007	u1725920390	-1457930201

Which of these printf statements created the outputs shown for each problem below? (x is int x;)

- (A) printf("uuuu%+03d",x); (D) printf("uu%07d",x); (G) printf("%5d",x);  
 (B) printf("uu%u4d",x); (E) printf("u%06d",x); (H) printf("%+6d",x);  
 (C) printf("uu%-2d",x); (F) printf("u%07d",x); (I) printf("%+9d",x);

inputs:	<u>8</u>	<u>-8</u>	<u>1513580769</u>	<u>-1427569346</u>
17/1p.	uuuu+8uuuu	uuuu-8uuuu	+1513580769uuuu	-1427569346uuuu
18/1p.	uu8uuuuuuu	uu-8uuuuuuu	uu1513580769uuuuuu	uu-1427569346uuuuuu
19/1p.	uu00008uuu	u-00008uuu	uu1513580769uuu	u-1427569346uuu
20/1p.	+00000008u	-00000008u	+1513580769u	-1427569346u
21/1p.	uuu000008u	uu-000008u	uuu1513580769u	uu-1427569346u
22/1p.	uuuu8uuuuu	uuu-8uuuuu	u1513580769uuuuu	-1427569346uuuuu
23/1p.	uuuuu8uuuu	uuuu-8uuuu	uuu1513580769uuuu	uu-1427569346uuuu
24/1p.	uuuu+08uuu	uuuu-08uuu	uuuu+1513580769uuu	uuuu-1427569346uuu

Which of these printf statements created the outputs shown for each problem below? (x is char \* x;)

- (A) printf("%%-4s",x); (D) printf("%5s",x); (G) printf("%-6s",x);  
 (B) printf("%%2s%%",x); (E) printf("%s%%",x); (H) printf("%1s%%",x);  
 (C) printf("%%4s",x); (F) printf("%-5s",x); (I) printf("%6s",x);

inputs:	""	"p"	"yy"	"lkwf"	"bddhwh"	"fzkhbzfy"
25/1p.	uuuuuu	uuuuuP	uuuuyy	uu_lkwf	u_bddhwh	u_fzkhbzfy
26/1p.	uuuuuu	uuuuuP	uuuuyy	uu_lkwf	uu_bddhwh	uu_fzkhbzfy
27/1p.	uuuuuu	Puuuuu	yyuuuu	lkwf_uu	bddhwh_u	fzkhbzfy_u
28/1p.	uuuuuu	uuPuuu	uuYYuu	uu_lkwf	uu_bddhwh	uu_fzkhbzfy
29/1p.	uuuuuu	uPuuuuu	uYYuuuuu	u_lkwf_uuuuu	u_bddhwh_uuuuu	u_fzkhbzfy_uuuuu
30/1p.	uuuuuu	uuuuuP	uuuuyy	uu_lkwf	bddhwh	fzkhbzfy

Which of these printf statements created the outputs shown for each problem below? (x is char \* x;)

- (A) printf("%%2s",x); (D) printf("%3s",x); (G) printf("%-5s",x);  
 (B) printf("%%-4s",x); (E) printf("%s%%",x); (H) printf("%-6s",x);  
 (C) printf("%1s%%",x); (F) printf("%-2s%%",x); (I) printf("%5s",x);

inputs:	"q"	"qx"	"zlvf"	"hvqczg"	"bjcqlvfh"
31/1p.	uuuuuu	uquuuu	uqxuuu	u_zlvf_uuu	u_hvqczg_uuu
32/1p.	uuuuuu	uuuuqu	uuuqxu	zlvf_u	hvqczg_u
33/1p.	uuuuuu	quuuuu	qxuuuu	zlvf_uu	hvqczg
34/1p.	uuuuuu	uuuuqu	uuuqxu	uu_zlvf_u	uu_hvqczg_u
35/1p.	uuuuuu	uuquuu	uuqxuu	uu_zlvf	uu_hvqczg

Which of these printf statements created the outputs shown for each problem below? (x is double x;)

- (A) printf("%%0+11.2f",x); (D) printf("%+013.2f",x); (G) printf("%+013.6f",x);  
 (B) printf("%%010.4f",x); (E) printf("%0+12.2f",x); (H) printf("%+014.4f",x);  
 (C) printf("%+11.2f",x); (F) printf("%12f",x); (I) printf("%+14.6f",x);

inputs:	3	-3.20	-2.4398	-356130.386641
36/1p.	+00000003.0000	-00000003.2000	-00000002.4398	-00356130.3866
37/1p.	u+00000003.00	u-00000003.20	u-00000002.44	u-000356130.39
38/1p.	uuu00003.0000u	uuu-0003.2000u	uuu-0002.4398u	uuu-356130.3866u
39/1p.	uuuuu+3.000000	uuuuu-3.200000	uuuuu-2.439800	-356130.386641
40/1p.	+00003.000000u	-00003.200000u	-00002.439800u	-356130.386641u
41/1p.	u+00000003.00u	u-00000003.20u	u-00000002.44u	u-00356130.39u

Which of these printf statements created the outputs shown for each problem below? (x is double x;)

- (A) printf("%%10.4f",x); (D) printf("%+10.0f",x); (G) printf("%0+14.6f",x);  
 (B) printf("%%+11.4f",x); (E) printf("%+14.2f",x); (H) printf("%013f",x);  
 (C) printf("%10.2f",x); (F) printf("%0+10.2f",x); (I) printf("%014.2f",x);

inputs:	4	-1.64	1.7083	-459012.805772
42/1p.	0000000004.00	-000000001.64	0000000001.71	-0000459012.81
43/1p.	uuuuuuuu4.00uu	uuuuuuuu-1.64uu	uuuuuuuu1.71uu	uu-459012.81uu
44/1p.	000004.000000u	-00001.640000u	000001.708300u	-459012.805772u
45/1p.	uuuuuuuu4.0000u	uuuuuuuu-1.6400u	uuuuuuuu1.7083u	uuu-459012.8058u
46/1p.	uuuuuu+4.0000u	uuuuuu-1.6400u	uuuuuu+1.7083u	uu-459012.8058u
47/1p.	+000004.00uuuu	-000001.64uuuu	+000001.71uuuu	-459012.81uuuu

Total points 47.

**Answer Key** (points per line)

1 (1).	D	25 (1).	D
2 (1).	B	26 (1).	C
3 (1).	A	27 (1).	F
4 (1).	E	28 (1).	A
5 (1).	F	29 (1).	E
6 (1).	G	30 (1).	I
7 (1).	H	31 (1).	F
8 (1).	C	32 (1).	I
9 (1).	H	33 (1).	H
10 (1).	C	34 (1).	A
11 (1).	F	35 (1).	B
12 (1).	I	36 (1).	H
13 (1).	E	37 (1).	D
14 (1).	A	38 (1).	B
15 (1).	B	39 (1).	I
16 (1).	G	40 (1).	G
17 (1).	H	41 (1).	E
18 (1).	C	42 (1).	I
19 (1).	E	43 (1).	C
20 (1).	I	44 (1).	H
21 (1).	D	45 (1).	A
22 (1).	G	46 (1).	B
23 (1).	B	47 (1).	F
24 (1).	A		

Total points 47.