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("␣␣␣%␣d␣␣␣␣",x);` (D) `printf("␣%-3d␣␣␣␣",x);` (G) `printf("%+7d␣",x);`
(B) `printf("␣␣%05d␣",x);` (E) `printf("␣%-6d␣",x);` (H) `printf("%+8d",x);`
(C) `printf("␣␣%3d␣␣␣",x);` (F) `printf("%␣-7d␣",x);` (I) `printf("%8d",x);`

inputs:	9	-8	1432258278	-1620260045
1/1p.	␣␣00009␣	␣␣-0008␣	␣␣1432258278␣	␣␣-1620260045␣
2/1p.	␣␣␣␣␣␣␣9	␣␣␣␣␣␣-8	1432258278	-1620260045
3/1p.	␣␣␣␣␣␣+9	␣␣␣␣␣␣-8	+1432258278	-1620260045
4/1p.	␣␣␣␣␣+9␣	␣␣␣␣␣-8␣	+1432258278␣	-1620260045␣
5/1p.	␣9␣␣␣␣␣	␣-8␣␣␣␣␣	␣1432258278␣	␣-1620260045␣
6/1p.	␣␣␣␣9␣␣␣␣	␣␣␣-8␣␣␣␣	␣␣␣␣1432258278␣␣␣␣	␣␣␣-1620260045␣␣␣␣
7/1p.	␣9␣␣␣␣␣␣	-8␣␣␣␣␣␣	␣1432258278␣	-1620260045␣
8/1p.	␣␣␣␣9␣␣␣	␣␣␣-8␣␣␣	␣␣1432258278␣␣␣	␣␣-1620260045␣␣␣

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

(A) `printf("␣␣␣␣␣%3d␣␣",x);` (D) `printf("␣␣%4d␣␣␣␣",x);` (G) `printf("␣%09d",x);`
(B) `printf("␣␣␣␣%0␣5d␣",x);` (E) `printf("␣␣%7d␣",x);` (H) `printf("%-␣10d",x);`
(C) `printf("␣␣%-␣7d␣",x);` (F) `printf("␣%+-9d",x);` (I) `printf("%08d␣␣",x);`

inputs:	4	-6	1864788978	-1596288316
9/1p.	␣␣␣␣␣␣␣4␣␣	␣␣␣␣␣␣-6␣␣	␣␣␣␣␣1864788978␣␣	␣␣␣␣␣-1596288316␣␣
10/1p.	␣000000004	␣-00000006	␣1864788978	␣-1596288316
11/1p.	␣+4␣␣␣␣␣␣␣	␣-6␣␣␣␣␣␣␣	␣+1864788978	␣-1596288316
12/1p.	␣␣␣␣␣␣␣␣4␣	␣␣␣␣␣␣␣-6␣	␣␣1864788978␣	␣␣-1596288316␣
13/1p.	␣4␣␣␣␣␣␣␣	-6␣␣␣␣␣␣␣␣	␣1864788978	-1596288316
14/1p.	␣␣␣␣␣0004␣	␣␣␣␣␣-0006␣	␣␣␣␣␣1864788978␣	␣␣␣␣-1596288316␣
15/1p.	␣␣␣␣␣4␣␣␣␣	␣␣␣␣␣-6␣␣␣␣	␣␣1864788978␣␣␣␣	␣␣-1596288316␣␣␣␣
16/1p.	00000004␣␣	-0000006␣␣	1864788978␣␣	-1596288316␣␣

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

(A) `printf("␣␣␣␣%+3d",x);` (D) `printf("␣␣%␣5d",x);` (G) `printf("%␣07d",x);`
(B) `printf("␣␣␣%02d␣␣",x);` (E) `printf("␣␣%-+5d",x);` (H) `printf("%+07d",x);`
(C) `printf("␣␣%␣4d␣",x);` (F) `printf("␣%3d␣␣␣",x);` (I) `printf("%-+7d",x);`

inputs:	1	-7	1846225329	-2024817078
17/1p.	␣000001	-000007	␣1846225329	-2024817078
18/1p.	␣␣␣␣␣␣1	␣␣␣␣␣-7	␣␣␣1846225329	␣␣-2024817078
19/1p.	␣␣␣01␣␣	␣␣␣-7␣␣	␣␣␣1846225329␣␣	␣␣␣-2024817078␣␣
20/1p.	␣␣␣␣␣1␣	␣␣␣␣-7␣	␣␣␣1846225329␣	␣␣-2024817078␣
21/1p.	+000001	-000007	+1846225329	-2024817078
22/1p.	␣␣␣␣␣+1	␣␣␣␣␣-7	␣␣␣␣+1846225329	␣␣␣␣-2024817078
23/1p.	␣␣+1␣␣␣	␣␣-7␣␣␣	␣␣+1846225329	␣␣-2024817078
24/1p.	+1␣␣␣␣␣	-7␣␣␣␣␣	+1846225329	-2024817078

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

(A) `printf("␣␣␣␣␣%1s␣",x);` (D) `printf("␣␣%-4s␣",x);` (G) `printf("%-5s␣␣",x);`
(B) `printf("␣␣␣%2s␣␣",x);` (E) `printf("␣␣%s␣␣␣␣␣",x);` (H) `printf("%-6s␣",x);`
(C) `printf("␣␣␣%3s␣",x);` (F) `printf("␣%5s␣",x);` (I) `printf("%7s",x);`

inputs:	""	"l"	"vd"	"wdhh"	"dzxllk"	"ppxhhqvq"
25/1p.	␣␣␣␣␣␣␣	␣␣␣␣␣␣l	␣␣␣␣␣vd	␣␣␣wdhh	␣dzxllk	ppxhhqvq
26/1p.	␣␣␣␣␣␣␣	␣␣␣␣␣l␣	␣␣␣␣vd␣	␣␣wdhh␣	␣dzxllk␣	␣ppxhhqvq␣
27/1p.	␣␣␣␣␣␣␣	l␣␣␣␣␣␣	vd␣␣␣␣␣	wdhh␣␣␣	dzxllk␣␣	ppxhhqvq␣␣
28/1p.	␣␣␣␣␣␣␣	␣␣␣␣␣l␣	␣␣␣␣vd␣	␣␣␣wdhh␣	␣␣␣dzxllk␣	␣␣␣ppxhhqvq␣
29/1p.	␣␣␣␣␣␣␣	␣␣l␣␣␣␣␣	␣␣vd␣␣␣␣␣	␣␣wdhh␣␣␣␣␣	␣␣dzxllk␣␣␣␣␣	␣␣ppxhhqvq␣␣␣␣␣
30/1p.	␣␣␣␣␣␣␣	␣␣l␣␣␣␣	␣␣vd␣␣␣	␣␣wdhh␣	␣␣dzxllk␣	␣␣ppxhhqvq␣

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

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

inputs:	""	"z"	"wx"	"dlyj"	"qcbplw"	"zzwxwffk"
31/1p.	␣␣␣␣	z␣␣␣	wx␣␣	dlyj	qcbplw	zzwxwffk
32/1p.	␣␣␣␣	␣␣␣z	␣␣wx	dlyj	qcbplw	zzwxwffk
33/1p.	␣␣␣␣	z␣␣␣	wx␣␣	dlyj␣	qcbplw␣	zzwxwffk␣
34/1p.	␣␣␣␣	␣␣z␣	␣wx␣	dlyj␣	qcbplw␣	zzwxwffk␣
35/1p.	␣␣␣␣	␣␣z␣␣	␣␣wx␣␣	␣␣dlyj␣␣	␣␣qcbplw␣␣	␣␣zzwxwffk␣␣

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

(A) `printf("␣␣%012.0f",x);` (D) `printf("␣%10.0f␣␣␣",x);` (G) `printf("%+014.4f",x);`
(B) `printf("␣␣%11.4f␣",x);` (E) `printf("␣%11f␣␣",x);` (H) `printf("%+13.2f␣",x);`
(C) `printf("␣%+013.2f",x);` (F) `printf("%+012f␣␣",x);` (I) `printf("%14.0f",x);`

inputs:	9	-1.45	2.0551	-251017.790849
36/1p.	␣␣␣␣9.000000␣␣	␣␣␣␣-1.450000␣␣	␣␣␣␣2.055100␣␣	␣-251017.790849␣␣
37/1p.	␣␣000000000009	␣␣-00000000001	␣␣000000000002	␣␣-00000251018
38/1p.	␣␣␣␣␣␣␣␣+9.00␣	␣␣␣␣␣␣␣␣-1.45␣	␣␣␣␣␣␣␣␣+2.06␣	␣␣␣-251017.79␣
39/1p.	␣␣␣␣␣␣␣9.0000␣	␣␣␣␣␣␣␣-1.4500␣	␣␣␣␣␣␣␣2.0551␣	␣␣-251017.7908␣
40/1p.	␣␣␣␣␣␣␣␣␣␣␣␣␣9	␣␣␣␣␣␣␣␣␣␣␣␣␣-1	␣␣␣␣␣␣␣␣␣␣␣␣␣2	␣␣␣␣␣␣␣-251018
41/1p.	+00000009.0000	-00000001.4500	+00000002.0551	-00251017.7908

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

(A) `printf("␣␣%011.6f␣",x);` (D) `printf("␣%0+12.2f␣",x);` (G) `printf("%0+14f",x);`
(B) `printf("␣␣%10f␣␣",x);` (E) `printf("␣%0+13.0f",x);` (H) `printf("%10.6f␣␣␣␣",x);`
(C) `printf("␣%+011.0f␣␣",x);` (F) `printf("␣%012f␣",x);` (I) `printf("%11.4f␣␣␣",x);`

inputs:	1	8.40	-1.6226	-188363.206280
42/1p.	␣00001.000000␣	␣00008.400000␣	␣-0001.622600␣	␣-188363.206280␣
43/1p.	␣␣0001.000000␣	␣␣0008.400000␣	␣␣-001.622600␣	␣␣-188363.206280␣
44/1p.	␣+000000000001	␣+000000000008	␣-000000000002	␣-000000188363
45/1p.	+000001.000000	+000008.400000	-000001.622600	-188363.206280
46/1p.	␣+0000000001␣␣	␣+0000000008␣␣	␣-0000000002␣␣	␣-0000188363␣␣
47/1p.	␣␣1.000000␣␣␣␣	␣␣8.400000␣␣␣␣	␣-1.622600␣␣␣␣	-188363.206280␣␣␣␣

Total points 47.

Answer Key (points per line)

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

Total points 47.