

### Question CLRS 24.1-1

Most people did well on this question. The only problem that popped up with noticeable frequency was the tendency to not do all the edges in each pass (remember, the edges are ordered and each edge gets relaxed).

Part A)

Vertex	Data	Run 0	Run 1	Run 2	Run 3	Run 4
z	d[z]= $\pi$ [z]=	0 null	0 null	0 null	0 null	0 null
x	d[x]= $\pi$ [x]=	$\infty$ null	7 z	6 y	6 y	6 y
y	d[y]= $\pi$ [y]=	$\infty$ null	9 s	9 s	9 s	9 s
t	d[t]= $\pi$ [t]=	$\infty$ null	8 s	5 x	4 x	4 x
s	d[s]= $\pi$ [s]=	$\infty$ null	2 z	2 z	2 z	2 z

Returns TRUE

Part B)

Vertex	Data	Run 0	Run 1	Run 2	Run 3	Run 4
z	d[z]= $\pi$ [z]=	$\infty$ null	$\infty$ null	2 t	2 t	-2 t
x	d[x]= $\pi$ [x]=	$\infty$ null	$\infty$ null	4 y	4 y	2 z
y	d[y]= $\pi$ [y]=	$\infty$ null	7 s	7 s	7 s	7 s
t	d[t]= $\pi$ [t]=	$\infty$ null	6 s	2 x	2 x	2 x
s	d[s]= $\pi$ [s]=	0 null	0 null	0 null	0 null	0 null

Returns FALSE (we have a negative weight cycle)

### Question CLRS 24.3-1

Vertex	Data	Run 1	Run 1	Run 2	Run 4-6
s	d[s]= $\pi$ [s]=	0 null	0 null	0 null	0 null
t	d[t]= $\pi$ [t]=	$\infty$ null	3 s	3 s	3 s
y	d[y]= $\pi$ [y]=	$\infty$ null	5 s	5 s	5 s
x	d[x]= $\pi$ [x]=	$\infty$ null	$\infty$ null	9 t	9 t
z	d[z]= $\pi$ [z]=	$\infty$ null	$\infty$ null	$\infty$ null	11 y

Vertex	Data	Run 1	Run 1	Run 2	Run 4-6
s	d[s]= $\pi$ [s]=	0 null	3 z	3 z	3 z
t	d[t]= $\pi$ [t]=	$\infty$ null	$\infty$ null	6 s	6 s
y	d[y]= $\pi$ [y]=	$\infty$ null	$\infty$ null	8 s	8 s
x	d[x]= $\pi$ [x]=	$\infty$ null	7 z	7 z	7 z
z	d[z]= $\pi$ [z]=	$\infty$ null	0 null	0 null	0 null