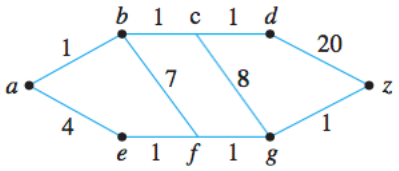
Devin Gendron
Reading: page 710-714
HW: Set 10.7 - #'s 14,15

Use Dijkstra's algorithm to find the shortest path from a to z for each of the graphs in 13–16. In each case make tables similar to Table 10.7.1 to show the action of the algorithm.

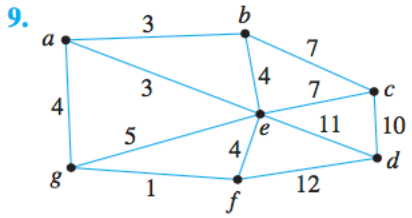
14.



S	V(T)	E(T)	F	L(a)	L(b)	L(c)	L(d)	L(e)	L(f)	L(g)	L(z)
0	{a}	∅	{a}	**0**	∞	∞	∞	∞	∞	∞	∞
1	{a}	∅	{b, e}	0	**1**	∞	∞	4	∞	∞	∞
2	{a, b}	{{a, b}}	{c, e, f}	0	1	**2**	∞	4	8	∞	∞
3	{a, b, c}	{{a, b}, {b, c}}	{d, g}	0	1	2	**3**	4	8	10	∞
4	{a, b, c, d}	{{a, b}, {b, c}, {c, d}}	{z}	**0**	1	2	3	4	8	10	23
5	{a, b, c, d, e}	{{a, b}, {b, c}, {c, d}, {a, e}}	{f}	0	1	2	∞	**4**	5	∞	23
6	{a, b, c, d, e, f}	{{a, b}, {b, c}, {c, d}, {a, e}, {e, f}}	{b, g}	0	1	2	∞	4	**5**	6	23
7	{a, b, c, d, e, f}	{{a, b}, {b, c}, {c, d}, {a, e}, {e, f}, {f, g}}	{c, z}	0	1	2	3	4	5	**6**	7
8	{a, b, c, d, e, f, d}	{{a, b}, {b, c}, {c, d}, {a, e}, {e, f}, {f, g}, {g, z}}	{z}	0	1	2	3	4	5	6	**7**
9	{a, b, c, d, e, f, d, g, z}	{{a, b}, {b, c}, {c, d}, {a, e}, {e, f}, {f, g}, {g, z}}									

a->e->f->g->z

15. The graph of exercise 9 with $a = a$ and $z = f$



S	V(T)	E(T)	F	L(a)	L(b)	L(c)	L(d)	L(e)	L(g)	L(z)
0	{a}	∅	{a}	**0**	∞	∞	∞	∞	∞	∞
1	{a}	∅	{b, e, g}	0	**3**	∞	∞	7	4	∞
2	{a, b}	{{a, b}}	{c, e}	0	**3**	10	∞	3	4	∞
3	{a, b, e}	{{a, b}, {a, e}}	{b, c, d, z g}	0	3	10	14	3	**4**	7
4	{a, b, e, g}	{{a, b}, {a, e}, {a, g}}	{e, z}	0	3	10	14	9	4	**5**
5	{a, b, e, g, z}	{{a, b}, {a, e}, {a, g}, {g, z}}								

a->g->z