LAST NAME	FIRST NAME	DATE

1 (2 points). Draw a graph defined by the adjacency matrix:

	A	B	C	D	E
A		X	X		X
B	X		X		
C	X	X			X
D					
E	X		X		

2 (2 points). Draw a *directed* graph *with loops,* defined by the adjacency matrix (arrows go from row letters to column letters):
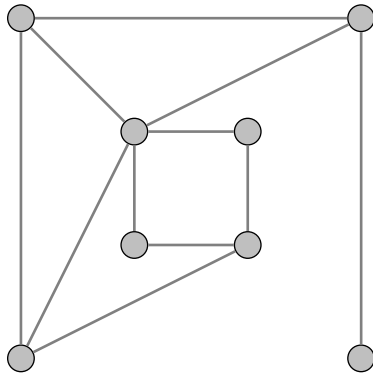
	A	B	C	D	E
A	X		X		
B			X		
C	X				X
D		X		X	
E				X	

3 (2 points). Fill out the adjacency matrix for the shown graph:
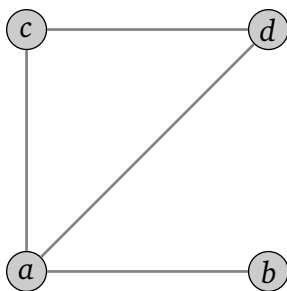
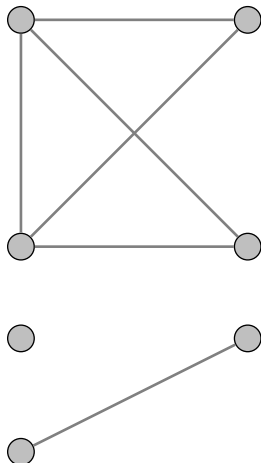|	a	b	c	d
a				
b				
c				
d				

4 (8 points)**.** For each of the two shown graphs, determine its parameters.

Graph G:

(a) Label the degree of each vertex.
(b) The number of vertices:

(c) The number of edges:

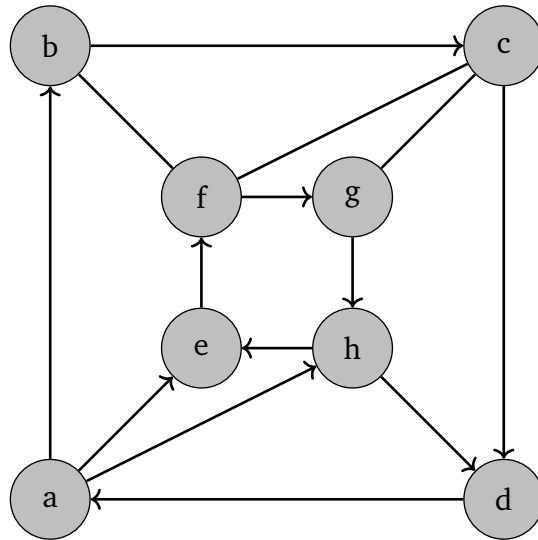(d) The number of components:

(e) Is the graph is connected?

Graph H:

(a) Label the degree of each vertex.
(b) The number of vertices:

(c) The number of edges:

(d) The number of components:

(e) Is the graph is connected?

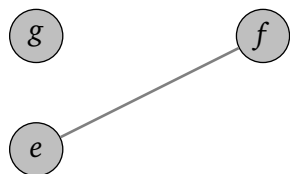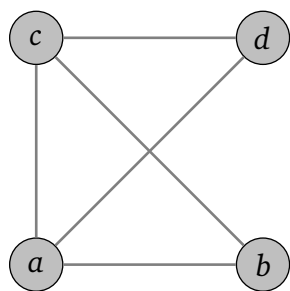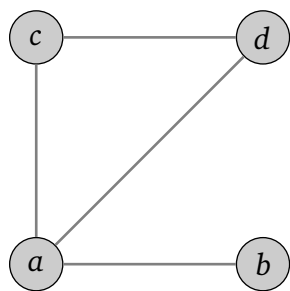**5** (1 point)**.** Draw K_6, the complete graph with 6 vertices.

6 (1 point)**.** Draw a **connected** graph **without multiple edges** and **without loops** with 1 vertex of degree 1, 2 vertices of degree 2, and 3 vertices of degree 3.

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7 (2 points). Fill out the adjacency matrix for the shown directed graph.

	a	b	c	d	e	f	g	h
a	0	1	0	0	1	0	0	0
b	0	0	1	0	0	0	0	0
c	0	0	0	1	0	0	0	0
d	1	0	0	0	0	0	0	0
e	0	0	0	0	0	1	0	0
f	0	1	1	0	0	0	1	0
g	0	0	0	0	0	0	0	1
h	1	0	0	1	1	0	0	0

8. Draw a complement of the given graph:

9. What is the degree of each vertex in the graph K_n?

10. How many edges does the graph K_n have?

11. Draw a graph where vertices are integers from 10 to 20, and two vertices are related iff they are different numbers that have at least one prime factor in common.