

## Answer Key

1. a. Vertices: **6**
- b. Edges: **6**
- c. Write down the degree of each node:

Vertex $v$	$\deg(v)$
$a$	<b>2</b>
$b$	<b>2</b>
$c$	<b>2</b>
$d$	<b>2</b>
$e$	<b>3</b>
$f$	<b>1</b>

- d. Maximum degree: **3**
- e. Minimum degree: **1**
2. a.  $a \rightarrow b \rightarrow c$  (2) or  $a \rightarrow d \rightarrow c$  (2) or  $a \rightarrow c$  (1).
- b. Example:  $a \rightarrow b \rightarrow c \rightarrow a$
- c. Example:  $a \rightarrow b \rightarrow c \rightarrow d$
3. a. Example:  $KC \rightarrow Independence \rightarrow Lee's Summit$
- b. Example:  $KC \rightarrow Independence \rightarrow Lee's Summit \rightarrow Grandview \rightarrow KC \rightarrow Overland Park \rightarrow Olathe \rightarrow Grandview$
- c. Example:  $KC \rightarrow Independence \rightarrow Lee's Summit \rightarrow Grandview \rightarrow KC$
- d. Example:  $Olathe \rightarrow Overland Park \rightarrow Olathe \rightarrow Grandview \rightarrow KC \rightarrow Grandview \rightarrow Lee's Summit \rightarrow Independence \rightarrow KC \rightarrow Overland Park$
- e. Yes:  $Olathe \rightarrow Overland Park$
4. Many solutions
5. Many solutions