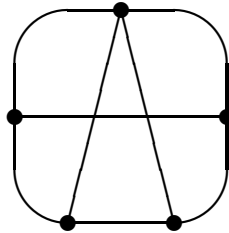


## Quiz #4 Solutions

1 Which of the following things are graphs?

'Twas brillig, and the slithy toves  
 Did gyre and gimble in the wabe;  
 All mimsy were the borogroves,  
 And the mome raths outgrabe.

$$\begin{aligned} &\text{Maximize } z = x - y \\ &\text{subject to} \\ &3x - y \leq 19 \\ &-x + 7y \geq 10 \\ &x + y = 100 \\ &x, y \geq 0 \end{aligned}$$



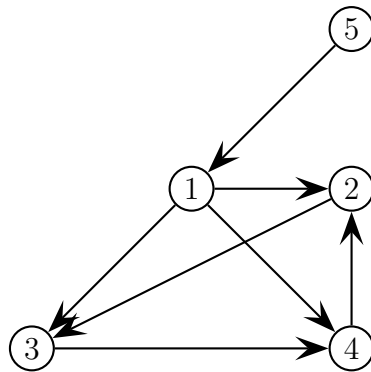
Day comes all at once;  
 I get distracted by the rain,  
 the big trucks, the woman  
 in a Lincoln Town Car  
 who leaves her blinker on  
 long after she has merged.  
 I check my rearview mirror  
 to pass her, and behind me  
 the sky is red. How did I  
 not notice morning?

**Answer:** Just the thing in the lower-left.

2 Identify the poets.

**Answer:** The poem on the top row is the beginning to Jabberwocky, from Lewis Carroll's *Through the Looking-Glass, and What Alice Found There*. "Brillig" means the time that you begin to broil things for dinner. The poem on the bottom right is by Sarah Sword.

3 Write down the incidence matrix for the following digraph.



**Answer:**

$$\begin{bmatrix} 0 & 1 & 1 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 & 0 \end{bmatrix}$$