

Question 1

a.

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RedBooks  $\leftarrow \sigma_{(\text{color} = \text{"red"})}(\text{Book})$   
A  $\leftarrow \text{RedBooks} \bowtie_{(\text{Book.ISBN} = \text{Distribute.ISBN})} \text{Distribute}$   
Calgary  $\leftarrow \sigma_{(\text{sname} = \text{"Calgary"})}(A)$   
Result  $\leftarrow \pi_{(\text{name}, \text{city})}(A - \text{Calgary})$ 
```

b.

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Schools  $\leftarrow \sigma_{(\text{city} = \text{"Paris"})}(\text{School})$   
A  $\leftarrow \text{Schools} \bowtie_{(\text{sname} = \text{name})} \text{Distribute}$   
B  $\leftarrow A \bowtie_{((\text{pname} = \text{name}) \text{ and } (\text{Publisher.city} = \text{"London"}))} \text{Publisher}$   
Result  $\leftarrow \pi_{(\text{director})}(B)$ 
```

c.

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RomePublishers  $\leftarrow \sigma_{(\text{city} = \text{"Rome"})}(\text{Publisher})$   
A  $\leftarrow \text{RomePublishers} \bowtie_{((\text{pname} = \text{name}) \text{ and } (\text{sname} = \text{"Toronto"}))} \text{Distribute}$   
B  $\leftarrow A \bowtie_{(\text{sname} = \text{School.name})} \text{School}$   
Result  $\leftarrow \pi_{(\text{School.name})}(B)$ 
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d.

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CalgarySchools  $\leftarrow \sigma_{(\text{city} = \text{"Calgary"})}(\text{School})$   
A  $\leftarrow \text{CalgarySchools} \bowtie_{(\text{sname} = \text{name})} \text{Distribute}$   
B  $\leftarrow A \bowtie_{(\text{Distribute.ISBN} = \text{Book.ISBN})} \text{Book}$   
Result  $\leftarrow \pi_{(\text{title}, \text{count})}(\text{title}f_{(\text{COUNT} *)}(\text{Titles}))$ 
```

e.

Question 2

a.

todo

b.

todo

c.

todo

d.

todo

e.

todo