

**An advertising executive must schedule the advertising during a particular television show. Seven different consecutive time slots are available for advertisements during a commercial break, and are numbered one through seven in the order that they will be aired. Seven different advertisements – B, C, D, F, H, J, and K – must be aired during the show. Only one advertisement can occupy each time slot. The assignment of the advertisements to the slots is subject to the following restrictions:**

**B and D must occupy consecutive time slots.**

**B must be aired during an earlier time slot than K.**

**D must be aired during a later time slot than H.**

**If H does not occupy the fourth time slot, then F must occupy the fourth time slot.**

**K and J cannot occupy consecutively numbered time slots.**

**1. Which of the following could be a possible list of the advertisements in the order that they are aired?**

**(A) BDFHJCK**

**(B) CJBHDKF**

**(C) HBDFJCK**

**(D) HDBFKJC**

**(E) HJDBFKC**

**2. If advertisement B is assigned to the third time slot, then which of the following must be true?**

**(A) C is assigned to the sixth time slot.**

**(B) D is assigned to the first time slot.**

**(C) H is assigned to the fourth time slot.**

**(D) J is assigned to the fifth time slot.**

**(E) K is assigned to the seventh time slot.**

**3. Which of the following could be true?**

**(A) B is assigned to the first time slot.**

**(B) D is assigned to the fifth time slot.**

**(C) H is assigned to the seventh time slot.**

**(D) J is assigned to the sixth time slot.**

**(E) K is assigned to the third time slot.**

**4. If C is assigned to the third time slot, then each of the following could be true EXCEPT:**

**(A) B is assigned to the fifth time slot.**

- (B) D is assigned to the sixth time slot.**
- (C) F is assigned to the fourth time slot.**
- (D) J is assigned to the first time slot.**
- (E) K is assigned to the second time slot.**

**5. If H is assigned to the first time slot, then which of the following is a complete and accurate list of all the time slots to which C could be assigned?**

- (A) second, fifth, sixth, seventh**
- (B) second, fourth, fifth, sixth, seventh**
- (C) second, fourth, sixth**
- (D) second, third, fifth, sixth, seventh**
- (E) second, third, sixth**

**6. If J is assigned to the seventh slot, then which of the following must be assigned to the fifth slot?**

- (A) B**
- (B) C**
- (C) D**
- (D) F**
- (E) K**

**Question 1**

**Question 1 is a simple list question. To answer it, simply compare each rule to the answer choices, and cross off any choice that violates the rule.**

**Rule #1: BD or DB**

**Rule #2: B K**

**Rule #3: H D**

**Rule #4: 4 = F or H**

**Rule #5: JK and KJ**

**Answers:**

- (A) B D F H J C K**
- (B) C J B H D K J**
- (C) H B D F J C K**
- (D) H D B F K J C**
- (E) H J D B F K C**

**Rule #1 is violated by answer choice B, so B cannot be correct.**  
**Rule #2 is not violated by any choice.**  
**Rule #3 is violated by answer choice A, so A cannot be correct.**  
**Rule #4 is violated by answer choice E, so E cannot be correct.**  
**Rule #5 is violated by answer choice D, so D cannot be correct.**  
**This leaves only answer choice C, which must be the correct answer.**

**This scenario can now be used to answer other "could be true" questions!**

**Question 2**

**To solve this question, you should begin by redrawing your picture and placing B into slot 3.**

		<b>B</b>	<b>F/H</b>			
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**D must be adjacent to B, so it must be in slot 2, which means that H must be in slot 1.**

<b>H</b>	<b>D</b>	<b>B</b>	<b>F/H</b>			
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**F must occupy slot 4, since H now occupies slot 1. This leaves only C, J, and K for the remaining three empty spaces.**

<b>H</b>	<b>D</b>	<b>B</b>	<b>F</b>			
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**Since J and K cannot be next to each other, they must separate into slots 5 and 7, leaving C for slot 6.**

<b>H</b>	<b>D</b>	<b>B</b>	<b>F</b>	<b>J/K</b>	<b>C</b>	<b>K/J</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**This means that C must be in 6, which is answer choice A.**

**Question 3**

*This question is fairly simple if you took the time to combine rules 1, 2, and 3.*

*B cannot be in the first slot, since H will need to precede it, so A cannot be correct.*

*D can be in the fifth slot, so answer choice B could be true.*

*H cannot be in the seventh slot, since B, D, and K must all come after it.*

*J cannot be in the sixth slot. If J was placed sixth, then B and D would have to be placed second and third, with H placed first. This would leave no legal spot for K, since J and K cannot be consecutive.*

1	2	3	4	5	6	7
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*K cannot be in the third slot, since B, D, and H all need to precede it.*

**Question 4**

*To solve this question, begin by placing C into the third slot.*

	F/H					
1	2	3	4	5	6	7

*Slots 5 and 6 are now the only legal slots for B and D to occupy, which forces K into slot 7.*

					C	F/H	B/D	D/B	K
1	2	3	4	5	6	7			

*Now look at the answers. Since K must be assigned to slot 7, it cannot be assigned to the second slot, so E is the correct answer.*

**Question 5**

*To solve this question, begin by placing H into the first time slot. This will force F into slot 4.*

	H		F			
1	2	3	4	5	6	7

***B and D can now occupy either slots 2 and 3, or else slots 5 and 6, so it is best to create two separate pictures.***

	H			F	B/D	D/B	K
1	2	3	4	5	6	7	

H	B/D	D/B	F			
1	2	3	4	5	6	7

***In the second scenario, J and K must be separated in the three remaining spots, so C must come between them.***

	H			F	B/D	D/B	K
1	2	3	4	5	6	7	

H	B/D	D/B	F	K/J	C	J/K
1	2	3	4	5	6	7

***C can occupy either the second or third slot in the first picture, and must occupy the sixth slot in the second picture. Thus, the complete and accurate list of slots which C can occupy is second, third, and sixth, so answer choice E is correct. If you are unclear why C cannot occupy spots fifth and seventh which H is first, try creating a picture and attempting to fill it in with the other advertisements. You will not be able to separate J and K.***

**Question 6**

***To solve this question, begin by placing J into the seventh slot.***

			F/H			J
1	2	3	4	5	6	7

***H cannot occupy the fourth slot, since this would not allow enough room after it for B, D, and K. Thus F must occupy the fourth slot.***

			F			J
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1 2 3 4 5 6 7

*This will leave only slots 2 and 3 open for B and D, which will force H into slot 1.*

H	B/D	D/B	F			J
1	2	3	4	5	6	7

*Now K must be placed, but cannot be next to J, so it must occupy slot 5, with C leftover for slot 6.*

H	B/D	D/B	F	K	C	J
1	2	3	4	5	6	7

*Thus, K must occupy the fifth spot, which is answer choice E.*