Since you just learned these algorithms, let me summarize each pass of the first three sorting algorithms:

- **Bubble**: Each pass: If element *i* is greater than element *i+1*, swap them.
- **Selection**: Pass *i*: Find the *i-th* smallest element and swap it with element *i*.
- **Insertion**: Pass *i*: Make sure that the first *i+1* elements are sorted.

Questions 1-4: Here is our initial vector:

```
Index:  0  1  2  3  4  5  6  7  8  9
Value: 46 28  5 56 47 85 44 14 66 72
```

After one pass of bubble sort:

Question 1: What value is at index 0?
Question 2: What value is at index 4?
Question 3: What value is at index 5?
Question 4: What value is at index 9?

Questions 5-8: Here is our initial vector:

```
Index:  0  1  2  3  4  5  6  7  8  9
Value: 50 64 14 31 13 84 31 48 21 54
```

After two passes of selection sort:

Question 5: What value is at index 0?
Question 6: What value is at index 1?
Question 7: What value is at index 2?
Question 8: What value is at index 3?

Questions 9-12: Here is our initial vector:

```
Index:  0  1  2  3  4  5  6  7  8  9
Value: 92 99 24 73 14 76 93 57 28 88
```

After two passes of insertion sort:

Question 9: What value is at index 0?
Question 10: What value is at index 1?
Question 11: What value is at index 2?
Question 12: What value is at index 3?

Clicker Question Answers

For explanation of these, please read the lecture notes on sorting.

Questions 1-4

Here's the vector after one pass of bubble sort:

```
Index:  0  1  2  3  4  5  6  7  8  9
Value: 28  5 46 47 56 44 14 66 72 85
```

Question 1: 28
Question 2: 56
Question 3: 44
Question 4: 85

Questions 5-8

Here's the vector after passes 1 and 2 of selection sort:

```
Index:   0  1  2  3  4  5  6  7  8  9
Pass 1: 13 64 14 31 50 84 31 48 21 54 -- Swap 50 and 13.
Pass 2: 13 14 64 31 50 84 31 48 21 54 -- Swap 64 and 14.
```

Question 5: 13
Question 6: 14
Question 7: 64
Question 8: 31

Questions 9-12

Here's the vector after passes 1 and 2 of insertion sort:

```
Index:   0  1  2  3  4  5  6  7  8  9
Pass 1: 92 99 24 73 14 76 93 57 28 88  -- Insert 99: No change - the first two elements are sorted.
Pass 2: 24 92 99 73 14 76 93 57 28 88  -- Insert 24 and move 92 and 99 over
```

Question 9: 24
Question 10: 92
Question 11: 99
Question 12: 73