1.

The answer is E, as all statements are correct.

2.

1 is incorrect, as each additional principal component explains either the less or the same, as more components are added.

2 is correct, as the cumulative amount either increases or stays the same.

3 is incorrect, as the goal is to use the smallest number of components.

4 is correct, a scree plot can be helpful when using PCA

The answer is E.

3.

1 is false, as loadings are only unique up to a sign flip.

2 is true, and is a given definition.

3 is true, as the four components can explain all the variance across the four variables.

The answer is D.

4.

The first two components appear to explain roughly 85% of the variance. Thus, two PCs are enough.

The answer is B

5.

1 is true as all three loadings have their sign flipped.

2 is true, as the lack of scaling can change the loadings.

3 is false, as all three of W and X's do not have their sign flipped.

The answer is B.