**Restriction Mapping Problems – AP Biology**

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| 1. Construct a restriction map of a linear fragment of DNA, using the following data. Your map should indicate the relative positions of the restriction sites along with distances from the ends of the molecule to the restriction sites and between restriction sites:
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| --- | --- |
| **DNA in gel lanes** | **Sizes of Fragments (bp)** |
| 1. uncut DNA
 | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 1. DNA cut with EcoRI
 | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 1. DNA cut with HindIII
 | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 1. DNA cut with BamHI
 | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 1. DNA cut with EcoRI + HindIII
 | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 1. DNA cut with EcoRI + BamHI
 | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 1. DNA cut with HindIII + BamHI
 | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

 1 2 3 4 5 6 7

1000 bp

900

 800

700

600

500

400

300

200

100

|  |
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| 1. Construct a restriction map of a circular DNA plasmid, using the following data. Your map should indicate the relative positions of the restriction sites along with distances between restriction sites:
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|  |  |
| --- | --- |
| **DNA** | **Sizes of Fragments (bp)** |
| uncut DNA | 7950 |
| DNA cut with BglII | 7950 |
| DNA cut with EcoRI | 7950 |
| DNA cut with HpaI | 7950 |
| DNA cut with BglII + EcoRI | 5416, 2534 |
| DNA cut with BglII + HpaI | 6632, 1318 |
| DNA cut with EcoRI + HpaI | 4098, 3852 |

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**AP Biology Restriction Mapping Problems: Answer Sheet**

1.

2.