# Speed It Up with Temperature!

Name: _____

Date: _____

Student quiz

**Directions:** Choose the best answer for each question below.

The following table shows the reaction times for the bleaching reaction at three different temperatures. In questions 1–3, identify which temperature matches which reaction time?

| | Reaction time [s] |
|---|---|
| a | 40 |
| b | 8 |
| c | 20 |

1. 54°C matches reaction time
   a.
   b.
   c.

2. 28°C matches reaction time
   a.
   b.
   c.

3. 8°C matches reaction time
   a.
   b.
   c.

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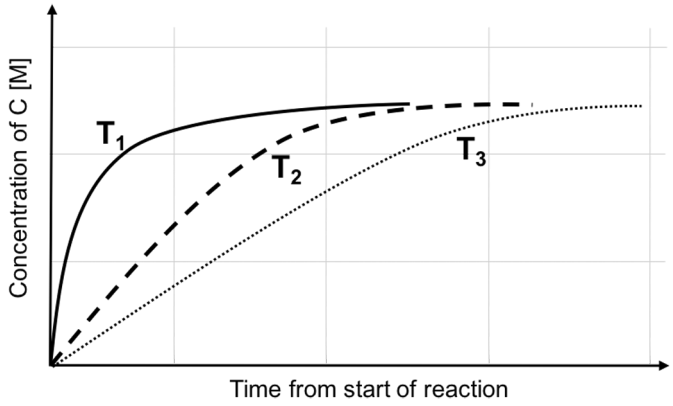
Date: _____

4. From an experiment measuring the dye concentration during a bleaching reaction, you got the results given in the table below. What is the average reaction rate for the whole reaction?

| Time [s] | Concentration [M] |
|---|---|
| 0 | 8 |
| 10 | 7 |
| 20 | 6 |
| 30 | 5 |
| 40 | 4 |
| 50 | 3 |

   a. 0.01 M/s
   b. 0.1 M/s
   c. 0.05 M/s
   d. 0.5 M/s

This graph shows the product formation of C during a chemical reaction A + B → C +D performed at three different temperatures ($T_1$, $T_2$, and $T_3$). Use the graph to decide whether each statement, in questions 5-9, is true or false.




5. T1 > T2

   True

   False

6. All reaction rates are the same.

   True

   False

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7. T1 < T2 < T3

   True

   False

8. T3 > T1

   True

   False

9. T1 > T2 >T3

   True

   False

10. According to the collision theory, an increase in temperature results in a higher reaction rate because a higher temperature…

    A. …increases the amount of reactant molecules that can react.

    B. …decreases the energy of the reactant molecules.

    C. …increases the number of reactant molecule collisions.

    D. …increases the energy of the reactant molecules.

    E. …slows down the movement of the reactant molecules.

    Which statements above are true?

    a. A and E

    b. C and D

    c. D and E

    d. A, C, and E