VECTOR SUBTRACTION

$$A$$

$$B$$

Vectors A and B

$$A$$

$$-B$$

$$A + (-B)$$

Resultant of A and $(-B)$

$$x_f$$

$$\Delta x \qquad -x_i$$
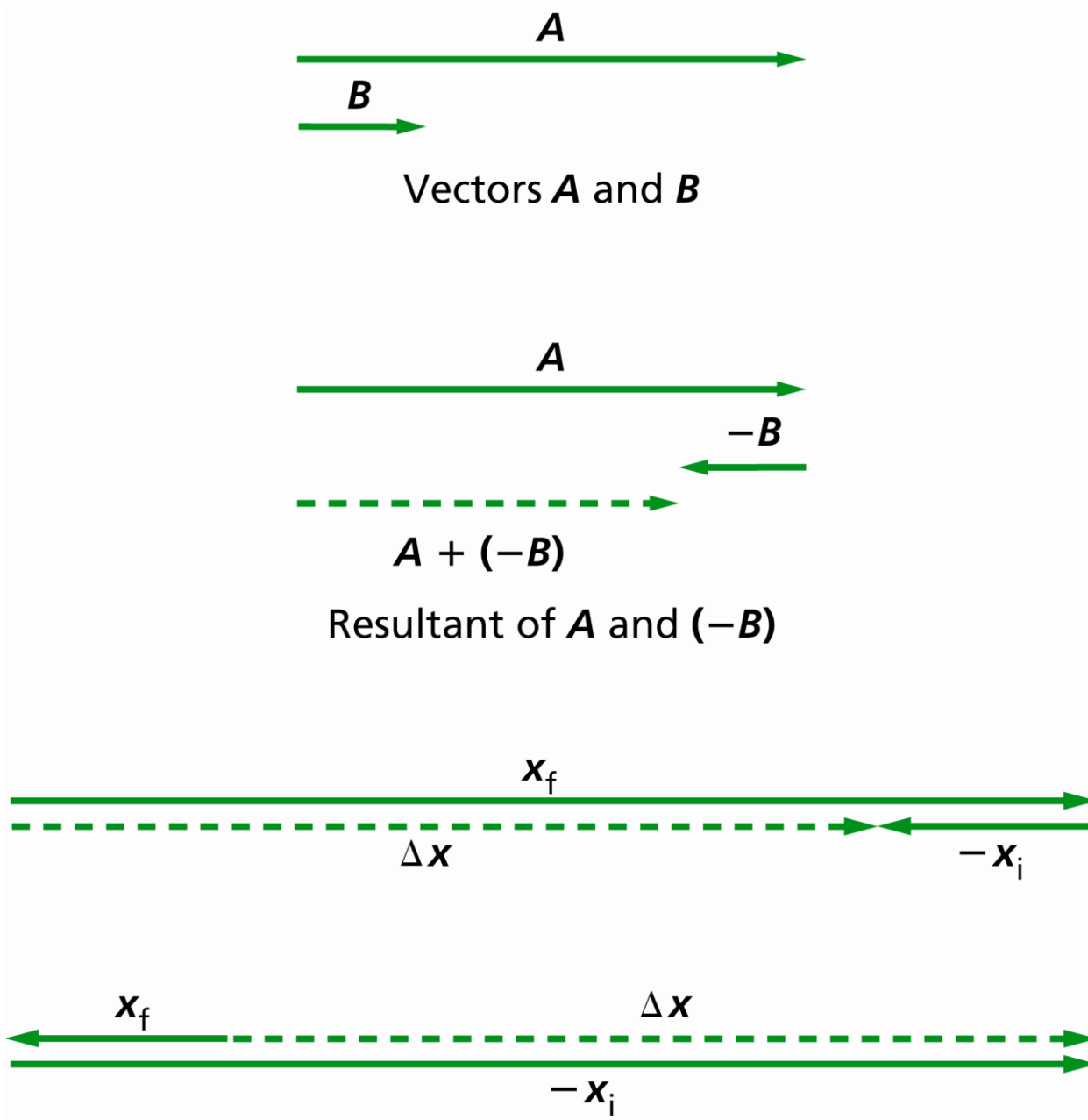
$$x_f \qquad \Delta x$$

$$-x_i$$

CHAPTER 2   VISUAL 3

VECTOR SUBTRACTION

1. What is the difference between a vector and a scalar?

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   _____

2. Look at the top figure. How would you subtract vector *A* from vector *B*.

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   _____

   _____

   _____

   _____

3. Suppose the vectors in problem 2 represent the movement of a jogger. She first runs 4 km due east, then turns around and jogs 1 km due west. Describe the vector for her overall movement.

   _____

4. Look at the bottom figure. Suppose that a car is 20 km due north of New York City. The car travels north toward Albany until it is 100 km due north of New York City.

   a. What are the magnitude and direction of x_i?

   _____

   b. What are the magnitude and direction of x_f?

   _____

   c. Calculate the magnitude and direction of Δx.

5. Suppose that problem 4 were restated to measure the displacement of the car from Albany instead from New York City. What would be the magnitude and direction of Δx? Explain your answer.

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