Interview With a Skydiver

Your school newspaper has tasked you with interviewing a professional skydiver to learn more about this adventure sport. As you take notes during your conversation, you find you are exploring the math of equivalent expressions by solving the problems below.

Work the Math

Directions: Record your responses on a separate sheet of paper and show your work.

1 **The professional skydiver you interviewed tried a number of different partner skydiving excursions to get lots of experience in the air while still being accompanied by a professional.**

a. Write an expression that describes how much it cost to take g lower-altitude dives at \$150 each, h mid-altitude dives at \$205 each, and j high-altitude dives at \$215 each.

b. Use the distributive property and the data above to write two equivalent expressions that describe how much it cost the skydiver to go on his excursions if g, h, and j all equal 8.

2 *Terminal velocity* **is the maximum speed an object (or person) can reach falling through the air. During the skydiver's last dive, he reached a terminal velocity of 190 kilometers per hour for m seconds. For these m seconds, the skydiver's velocity did not change.**

a. Convert the diver's terminal velocity into kilometers per second.

b. Write an expression describing the distance the skydiver fell during his m seconds of terminal velocity.
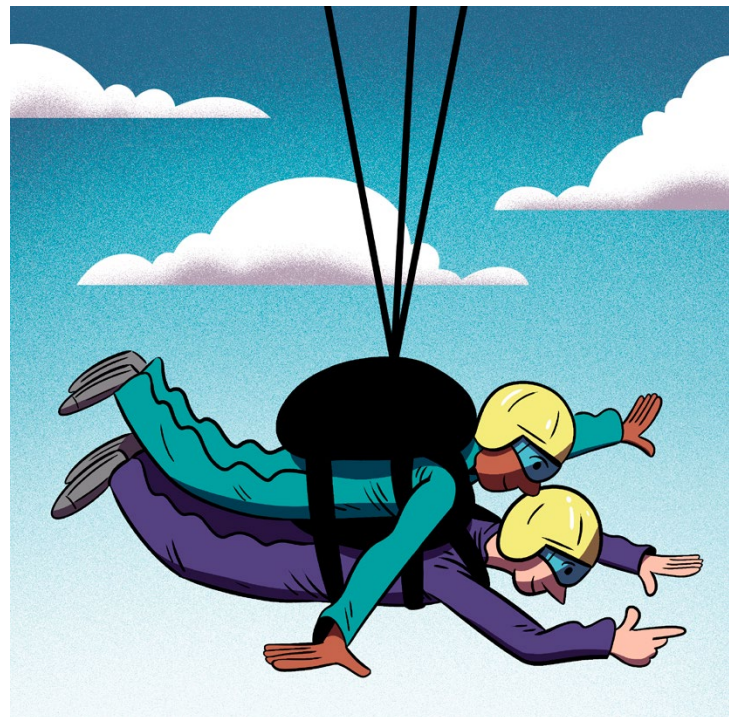
3 **Another diver with a different body mass reached a terminal velocity of 216 kilometers per hour for m seconds.**

a. Convert this diver's terminal velocity into kilometers per second.

b. Write an expression describing the distance the second diver fell during her m seconds of terminal velocity.

4 **Use your answers from questions 2 and 3 to compare the two divers:**

a. How much farther did the second diver fall than the first diver during the m seconds of terminal velocity? Use the distributive property to write two equivalent expressions.

b. If m was 30 seconds, how much farther did the second diver fall than the first diver during terminal velocity?