Lesson 1.5 Locating Points Using Weighted Averages

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Lesson 1.5 Locating

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Workbook pages 42-48

Content Objective

Students will locate points on a number line and a coordinate plane by using weighted averages.

MA.912.GR.3.1

Determine the weighted average of two or more points on a line.

MA.912.GR.3.3

Use coordinate geometry to solve mathematical and real-world geometric problems involving lines, circles, triangles and quadrilaterals.

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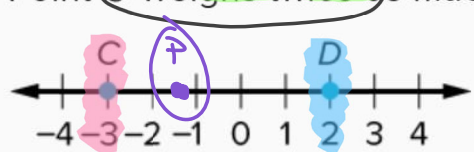
Example 1: Find a Weighted Average on a Number Line

Find the coordinate of P that represents the weighted average for each set of points with the given conditions.

-1.3

a. Enter your answers.

Point C weighs twice as much as point D.



C D

-3 2

2 1

$$\frac{-6+2}{2+1} = \frac{-4}{3}$$

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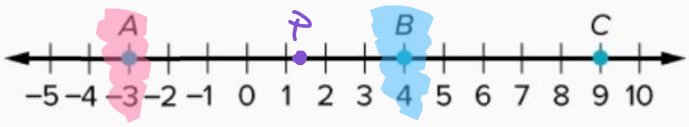
Example 1 Check

Find the coordinate of P that represents the weighted average for the point, based on the given conditions.



Point A has a weight of 2, and point B has a weight of 3.

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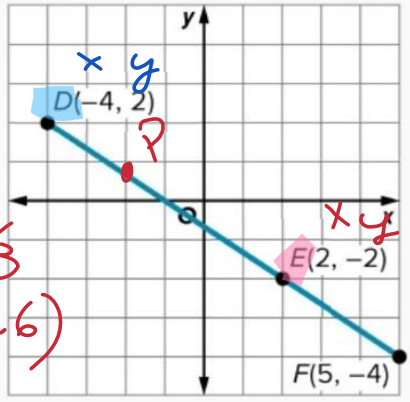
Example 2: Find a Weighted Average on the Coordinate Plane

Find the coordinate of P that represents the weighted average for the point, based on the given conditions.



Point D weighs twice as much as point E.

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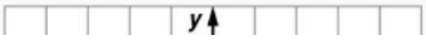
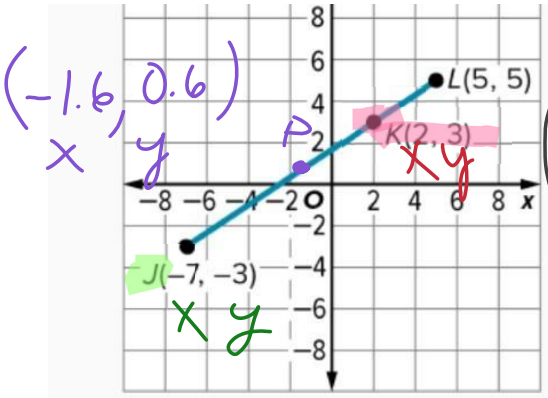
Example 2 Check

Find the coordinate of P that represents the weighted average for the point, based on the given conditions.





(−1.6, 0.6)

J K
−7 2
2 3

$\frac{-7(2)+2(3)}{2+3} = \frac{-8}{5} = -1.6$

J K
−3 3
2 3

$\frac{-3(2)+3(3)}{2+3} = \frac{-6+9}{5} = \frac{3}{5} = 0.6$

Point J has a weight of 2, and point K has a weight of 3.

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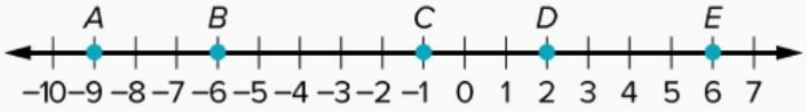
Practice

1. Use the number line to find the coordinate of P that represents the weighted average of each set of points with the given conditions. (Example 1)



Point B weighs three times as much as point D.

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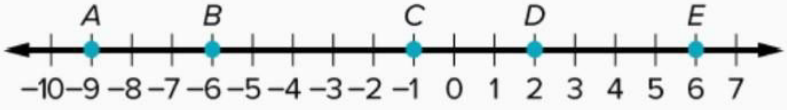
2. Use the number line to find the coordinate of P that represents the weighted average of each set of points with the given conditions. (Example 1)



Point C has a weight of 3, and point E has a weight of 5.

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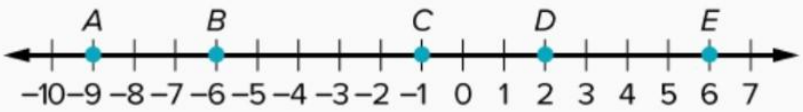
3. Use the number line to find the coordinate of P that represents the weighted average of each set of points with the given conditions. (Example 1)



Point A has a weight of 2, and point D has a weight of 3.

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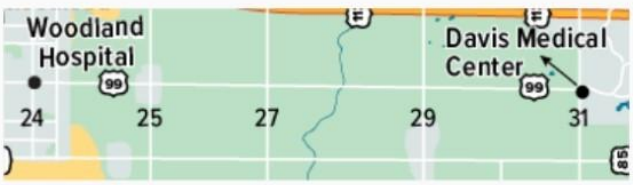
9. AMBULANCE

Some ambulances use weighted averages to find where to park between cities. Th
weight of a hospital is determined by the average number of emergent patients tha
need to be taken to the hospital on a daily basis. (Example 3)



a. The Davis Medical Center usually has a weight 4 times that of Woodland Hospital. Where should the ambulance park?

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