Equivalent Ratio Word Problem Worksheet

A County Superintendent of Highways is interested in the numbers of different types of vehicles that regularly travel within his county. In the month of August, a total of 192 registrations were purchased for passenger cars and pickup trucks at the local Department of Motor Vehicles (DMV). The DMV reported that in the month of August, for every 5 passenger cars registered, there were 7 pickup trucks registered. How many of each type of vehicle were registered in the county in the month of August?

a. Using the information in the problem, write four different ratios and describe the meaning of each.

b. Make a tape diagram that represents the quantities in the part-to-part ratios that you wrote.

c. How many equal-sized parts does the tape diagram consist of?

d. What total quantity does the tape diagram represent?

e. What value does each individual part of the tape diagram represent?

f. How many of each type of vehicle were registered in August?

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a. Using the information in the problem, write four different ratios and describe the meaning of each.

The ratio of cars to trucks is $5:7$ and is a part-to-part ratio. The ratio of trucks to cars is $7:5$, and that is a part-to-part ratio. The ratio of cars to total vehicles is 5 to 12, and that is a part-to-whole ratio. The ratio of trucks to total vehicles is 7 to 12, and that is a part-to-whole ratio.

b. Make a tape diagram that represents the quantities in the part-to-part ratios that you wrote.

c. How many equal-sized parts does the tape diagram consist of?

12

d. What total quantity does the tape diagram represent?

192 *vehicles*

e. What value does each individual part of the tape diagram represent?

Divide the total quantity into 12 equal-sized parts:

$$\frac{192}{12} = 16$$

f. How many of each type of vehicle were registered in August?

$5 \cdot 16 = 80$ *passenger cars*

$7 \cdot 16 = 112$ *pickup trucks*