Fraction Number Stories

Lesson 6-12

DATE TIME

Write a number model with an unknown to represent each problem. Then solve.

SRB 162-165, 190-192

1 Shamaela's full backpack weighed $10\frac{1}{4}$ pounds. Before leaving for school, she added a 1-subject notebook. Now her backpack weighs 11 pounds. How much does the 1-subject notebook weigh?

a. Number model with unknown: $11 - 10\frac{1}{4} = u$

b. Answer: $\frac{3}{4}$ pound

c. Does the 1-subject notebook weigh more or less than 8 ounces? More

How do you know? Sample answer: There are 16 ounces in a pound. $\frac{1}{2}$ pound is 8 ounces. The 1-subject notebook weighs $\frac{3}{4}$ of a pound. $\frac{3}{4} > \frac{1}{2}$

2 Carter's empty backpack weighed $1\frac{3}{4}$ pounds. He filled it with a $3\frac{2}{4}$-pound science book, a $\frac{2}{4}$-pound recorder, a $\frac{1}{4}$-pound calculator, and a $1\frac{1}{4}$-pound notebook. How much does the filled backpack weigh?

a. Number model with unknown: $1\frac{3}{4} + 3\frac{2}{4} + \frac{2}{4} + \frac{1}{4} + 1\frac{1}{4} = b$

b. Answer: $\frac{29}{4}$, or $7\frac{1}{4}$ pounds

c. What is the weight, in ounces, of each item in Carter's backpack?

Science book: 56 ounces

Recorder: 8 ounces

Calculator: 4 ounces

Notebook: 20 ounces

3 Jeyda's full backpack weighs 9 pounds. Ayla's full backpack weighs $2\frac{1}{2}$ pounds less than Jeyda's. How much does Ayla's full backpack weigh?

a. Number model with unknown: $9 - 2\frac{1}{2} = w$

b. Answer: $6\frac{1}{2}$ pounds

c. What is the combined weight of Ayla's and Jeyda's backpacks in ounces?

248 ounces

How do you know? Sample answer: The combined weight in pounds is $15\frac{1}{2}$ pounds. $15 * 16 = 240$ ounces. $\frac{1}{2}$ pound $= 8$ ounces. $240 + 8 = 248$ ounces.

4.NF.3, 4.NF.3a, 4.NF.3c, 4.NF.3d, 4.MD.1, 4.MD.2, SMP2, SMP4

4 Ethan's full backpack weighed too much. He took out a $\frac{4}{8}$-pound electronic reader, a $2\frac{1}{8}$-pound full bottle of water, and a $\frac{7}{8}$-pound combination lock. Now the backpack weighs $8\frac{5}{8}$ pounds. How much did the backpack weigh before Ethan took out the supplies?

a. Number model with unknown: $\frac{4}{8} + 2\frac{1}{8} + \frac{7}{8} + 8\frac{5}{8} = w$

b. Answer: $12\frac{1}{8}$ pounds

c. If the 16 ounces of water in the water bottle weigh 1 pound, what is the weight of the water bottle itself? $1\frac{1}{8}$ pounds How many ounces is that? 18 ounces

5 A red, a green, and a pink backpack are hanging on hooks in the classroom. The total weight of the three backpacks is 32 pounds. The red one weighs $9\frac{3}{4}$ pounds. The green one weighs $1\frac{3}{4}$ pounds more than the red one. How much does the pink one weigh?

a. Number models with unknowns: $32 - 9\frac{3}{4} = b$; $9\frac{3}{4} + 1\frac{3}{4} = g$; $22\frac{1}{4} - 11\frac{2}{4} = p$

b. Answer: $10\frac{3}{4}$ pounds

c. The green (color) backpack weighs 12 ounces more than the pink (color) backpack.

Explain how you know. Sample answer: 12 ounces is $\frac{3}{4}$ pound. The answer can't be red and green because green weighs $1\frac{3}{4}$ pounds more than red. It can't be red and pink because pink weighs 1 pound more than red. So, it must be green and pink.

Try This

6 Sujit is choosing between two silent reading books to carry in his backpack. The 309-page paperback weighs $\frac{1}{2}$ pound. The 341-page hardcover weighs $1\frac{1}{4}$ pounds more. How much does the hardcover book weigh?

a. Number model with unknown: $\frac{1}{2} + 1\frac{1}{4} = p$; $\frac{2}{4} + 1\frac{1}{4} = p$

b. Answer: $1\frac{3}{4}$ pounds

c. Is the combined weight of the two books more or less than 32 ounces? More

How do you know? Sample answer: 32 ounces = 2 pounds. The combined weight of the books is more than 2 pounds because the sum of $\frac{1}{2}$ and $1\frac{3}{4}$ is more than 2.

4.NF.3, 4.NF.3a, 4.NF.3c, 4.NF.3d, 4.MD.1, 4.MD.2, SMP2, SMP4