Off the Line

Let's study solutions and non-solutions.

15.1 Estimate: Coin Weight

How much does a nickel weigh?

1. Record an estimate that is:

too low	about right	too high

2. Explain your reasoning.

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15.2 Row Game: Equations

Work independently on your column. Partner A completes the questions in column A only and partner B completes the questions in column B only. Your answers in each row should match. Work on one row at a time, and check whether your answer matches your partner's before moving on. If you don't get the same answer, work together to find any mistakes.

Solve each equation for x.

row	column A	column B
1	$3x - 1 = 5$	$6x - 2 = 10$
2	$4(x + 1) = 3x - 12$	$4x + 4 = 3(x - 4)$
3	$14x + 10 = 4x + 6$	$7x + 5 = 2x + 3$
4	$6x + 3 = 33$	$4x + 2 = 22$
5	$4x + 5y = 2 - 4x + 5y$	$4x + 9y = 2 + 9y - 4x$
6	$2x + 6y = 10$	$5x + 15y = 25$

15.3 What Were They Thinking?

Read each student's reasoning, and answer the questions.

Jada says, "I know 4 nickels and 7 dollar coins weigh 76.7 grams. I know 4 nickels and 5 dollar coins weigh 60.5 grams. Here's what else I can figure out based on that:

- 2 dollar coins weigh 16.2 grams.
- 1 dollar coin weighs 8.1 grams.
- 5 dollar coins weigh 40.5 grams.
- 4 nickels weigh 20 grams.
- 1 nickel weighs 5 grams."

1. How did Jada figure out that 2 dollar coins weigh 16.2 grams?

2. Why might Jada have done that step first?

3. After Jada figured out how much 1 dollar coin weighed, why did she calculate how much 5 dollar coins weighed?

4. Once Jada knew how much 5 dollar coins weighed, how did she figure out how much 4 nickels weighed?

Priya says, “I know 9 plastic bricks and 3 number cubes weigh 39 grams, and 7 plastic bricks and 6 number cubes weigh 50.5 grams. Here’s what I can figure out based on that:

- The weight of 18 plastic bricks and 6 number cubes is 78 grams.
- The weight of 11 plastic bricks is 27.5 grams.
- The weight of 1 plastic brick is 2.5 grams.
- The weight of 9 plastic bricks is 22.5 grams.
- The weight of 3 number cubes is 16.5 grams.
- The weight of 1 number cube is 5.5 grams.”

1. Why is Priya’s second step only about plastic bricks, not number cubes?

2. How does it help Priya to have a statement that’s just about plastic bricks, and not number cubes?

3. Why might Priya have started by finding the weight of 18 plastic bricks and 6 number cubes?

4. After Priya figured out how much 1 plastic brick weighed, why did she calculate how much 9 plastic bricks weighed?