

Tasks to Standards, part 2

Common Core Standard	PA Common Core Standard	PA Assessment Anchor	Task

What's missing?

Show the student 6 counters (small, flat objects). Ask the student to close his/her eyes. Hide some of the counters under a sheet of heavy paper. When the student opens his/her eyes, s/he determines how many were hidden based on the number of counters still showing.

Commentary:

- Repeat the task 4-5 times per student.
- This task may be repeated with a different number of counters.
- Students should eventually be able to recognize the number of counters that are showing and/or hidden without counting.

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The Pet Snake

- The class had a pet snake. It was 14 inches long. It grew 3 more inches. How long is it now?
- The class had a pet snake. It was 14 inches long. It grew a few more inches. Now it is 17 inches long. How many inches did it grow?
- The class had a pet snake. It grew 3 more inches. Now it is 17 inches long. How long was it to start?

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Boxes and Cartons of Pencils

Pencils are packed 10 in a box. A classroom carton has 10 boxes.

- Jem has 1 carton and 4 boxes. How many pencils does Jem have all together?
- Lee needs to pack 370 pencils.
 - How many boxes does Lee need?
 - If Lee puts the boxes in cartons, how many cartons can he completely fill?
- Ms. Kato needs 10 pencils for each of her 26 students.
 - If she can only buy boxes, how many boxes does she need?
 - She finds out that it is cheaper to buy pencils in cartons. How many cartons should she buy? How many additional boxes will she need?

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Two Interpretations of Division

- Maria cuts 12 feet of ribbon into 3 equal pieces so she can share it with her two sisters. How long is each piece?
- Maria has 12 feet of ribbon and wants to wrap some gifts that need 3 feet of ribbon each. How many gifts can she wrap using the ribbon?

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Dimes and Pennies

A dime is $\frac{1}{10}$ of a dollar and a penny is $\frac{1}{100}$ of a dollar.

What fraction of a dollar is 6 dimes and 3 pennies? Write your answer in both fraction and decimal form.

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Video Game Scores

Eric is playing a video game. At a certain point in the game, he has 31500 points. Then the following events happen, in order:

- He earns 2450 additional points.
 - He loses 3310 points.
 - The game ends, and his score doubles.
- Write an expression for the number of points Eric has at the end of the game. Do not evaluate the expression. The expression should keep track of what happens in each step listed above.
 - Eric's sister Leila plays the same game. When she is finished playing, her score is given by the expression $3(24500 + 3610) - 6780$.

Describe a sequence of events that might have led to Leila earning this score.

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Distance to School

Some of the students at Kahlo Middle School like to ride their bikes to and from school. They always ride unless it rains.

Let d be the distance in miles from a student's home to the school. Write two different expressions that represent how far a student travels by bike in a four week period if there is one rainy day each week.

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Miles to Kilometers

The students in Mr. Sanchez's class are converting distances measured in miles to kilometers. To estimate the number of kilometers, Abby takes the number of miles, doubles it, and then subtracts 20% of the result. Renato first divides the number of miles by 5, and then multiplies the result by 8.

- Write an algebraic expression for each method.
- Use your answer to part (a) to decide if the two methods give the same answer.

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Sore Throats, Variation 2

Nia and Trey both had a sore throat so their mom told them to gargle with warm salt water.

Nia mixed 1 teaspoon salt with 3 cups water.

Trey mixed $\frac{1}{2}$ teaspoon salt with $1\frac{1}{2}$ cups of water.

Nia tasted Trey's salt water. She said,

"I added more salt so I expected that mine would be more salty, but they taste the same."

- Explain why the salt water mixtures taste the same.
- Find an equation that relates s , the number of teaspoons of salt, with w , the number of cups of water, for both of these mixtures.
- Draw the graph of your equation from part b.
- Your graph in part c should be a line. Interpret the slope as a unit rate.

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Increasing or Decreasing? Variation 1

Consider the expression

$$\frac{1}{\frac{1}{R_1} + \frac{1}{R_2}}$$

Where R_1 and R_2 are positive.

Suppose we increase the value R_1 while keeping R_2 constant. Does the value of the expression above increase, decrease, or stay the same? Explain in terms of the structure of the expression.

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Taxi!

Lauren keeps records of the distances she travels in a taxi and what she pays:

Distance, d , in miles	Fare, F , in dollars
3	8.25
5	12.75
11	26.25

- If you graph the ordered pairs (d, F) from the table, they lie on a line. How can you tell this without graphing them?
- Show that the linear function in part (a) has equation $F=2.25d+1.5$.
- What do the 2.25 and the 1.5 in the equation represent in terms of taxi rides?

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