



CCSS: 7.EE.B.3: Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers ... 7.EE.B.4a: Solve word problems leading to equations of the form $px + q = r$... where p , q , and r are specific rational numbers ... Also, 7.EE.B.4.

Launch

SAMPLE SOLUTIONS ARE SHOWN BELOW.

MP3, MP4

The shaky bagel baker decides to just divide by 13 to decide how much to charge for each bagel.

Does his method represent the per-bagel price his cross-town rival charges for bagels one to thirteen? Explain your reasoning.

No, the bagels do not all have the same value, so you can't divide the total by 13. The situation can be represented by the equation $12 \cdot b + 0.13 = 5.53$ with the cost of 12 bagels plus 13¢ for the thirteenth bagel equal to \$5.53.

To solve, you need to find the cost of one bagel.

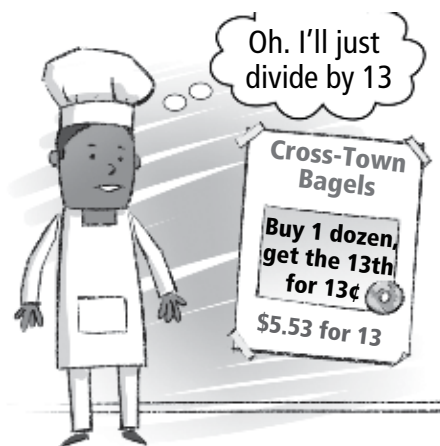
$$12 \cdot b + 0.13 = 5.53$$

$$12 \cdot b + 0.13 - 0.13 = 5.53 - 0.13$$

$$\frac{12 \cdot b}{12} = \frac{5.40}{12}$$

$$b = 0.45$$

One bagel costs \$0.45. The baker should charge 45¢ to match his rival.



Reflect What's the most important thing about solving equations? Explain.

Sample: You need to keep the expressions on each side of an equation equal. So, whatever you do to one side, you have to do to the other side.

Got It?

PART 1 Got It

► Solve the equation $6x - 5 = 19$ using algebra tiles.

$$x = 4$$

PART 2 Got It

► Solve the equation $\frac{k}{2} + 7.3 = 29.3$.

$$k = 44$$

PART 3 Got It

► A boating club rents sail boats for \$60 for the first hour and \$20 for each additional hour. When you return your boat, your fee is \$140. Write and solve an equation to find how many hours you kept the boat.

$$140 = 60 + 20h; 5 \text{ hours}$$

Close and Check



Focus Question

© MP2, MP8

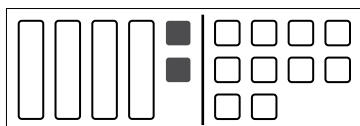
How is solving a two-step equation similar to solving a one-step equation?

Sample: You use the properties of equality and inverse
operations to form a series of simpler equivalent equations until
you isolate the variable.



Do you know HOW?

1. Write the modeled equation. Then solve it.



Equation: $4x - 2 = 10$

Solution: $x = 3$

2. Solve the equation $24.8 = 6g + 10.4$.

Solution: $g = 2.4$

3. You open a savings account with \$30. You deposit an additional \$20 every week. Write and solve an equation to find how many weeks it will take you to save \$150.

Equation: $20w + 30 = 150$

Solution: $w = 6$



Do you UNDERSTAND?

SAMPLE SOLUTIONS ARE SHOWN BELOW.

4. **Reasoning** Explain how to check the answer to Exercise 3.

Substitute 6 into the original
equation. $20(6) + 30 = 150$;

$120 + 30 = 150$; $150 = 150$.

Since the values on both sides
of the equation are the same,
your answer is correct.

5. **Error Analysis** Your friend says it will only take $4\frac{1}{2}$ weeks to save \$150 in the account from Exercise 3 because you have to subtract the original amount of the deposit, which is equal to $1\frac{1}{2}$ weeks. Do you agree? Explain.

No. The \$30 deposit is
subtracted first. The solution
represents how long it will
take to save \$120 more.