

Making Connections: Nail Polish

Student Methods

Table	Unit Rate	Equation

The **PURPOSE** for this activity... **Solving Inequalities.**

What it might look like on a test:

An amazing woman was painting her nails before going out to dinner. Before she started, she realized that she could take no more than 20 minutes to finish. If it takes 0.23 minutes to paint each nail, and the paint takes 15 minutes to dry, then what is the maximum amount of nails she will be able to paint before time runs out?

Why did we use $\leq$ in our equation?

What does the shaded area on the number line represent in this situation?

What would be a reasonable solution? Why?

Similar Problem

Kevin Durant is trying to break the single season scoring record. He needs to score at least 4030 points to break the record. If he has already scored 2595 points this season, and he averages 35 points per game, then how many more games does he need to play to break the record?

The following was solved correctly. ✓

$$\begin{array}{r} 4x - 3 \leq 7x + 9 \\ +3 \qquad +3 \\ 4x \leq 7x + 12 \\ -7x \quad -7x \\ \hline -3x \leq 12 \\ -3 \quad -3 \\ \hline x \geq -4 \end{array}$$

Would the answer be different if the student subtracted by 9 on both sides first instead of adding 3 to both sides? Explain.

Solve the same problem with a different method:

$$4x - 3 \leq 7x + 9$$

The following was solved incorrectly. ✗

$$\begin{array}{r} 12 < x + 4 \\ -4 \qquad -4 \\ 8 < x \\ x < 8 \end{array}$$

The student wanted x to be written first in their answer. What was their mistake?

What is the difference between $x < 8$ and $8 < x$?

Try this one:

$$15 \geq x - 7$$