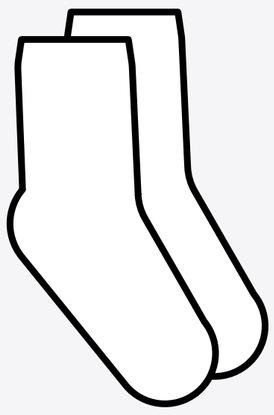
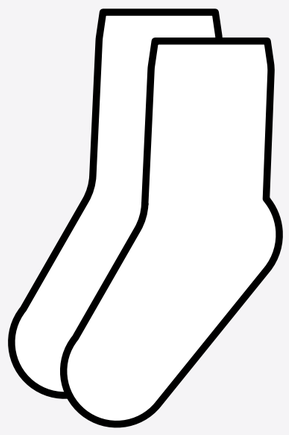


PAIRING PROBLEMS

Sometimes two problems are better than one



TRY IT

Have students choose a pair of problems they think are the most similar (or the most different). Then, have them explain what they think makes the pair similar (or different).

WHY TRY IT?

This instructional nudge promotes students'

- flexible thinking
- knowledge of mathematical structures
- ability to make connections between a set of problems

Pairing Instructional Nudge - Example 1

Solve the following equations for x: **(you can insert your own problems in this section)**

1. $5x - 8 = 7$

$+8 \quad +8$

$\frac{5x}{5} = \frac{15}{5}$

$x = 3$

2. $7x - 5 = 3x + 3$

$-3x \quad -3x$

$4x - 5 = 3$

$+5 \quad +5$

$\frac{4x}{4} = \frac{8}{4}$

$x = 2$

3. $12 + 6x = 3(x - 4)$

$12 + 6x = 3x - 12$

$-6x \quad -6x$

$12 = -3x - 12$

$+12 \quad +12$

$\frac{24}{-3} = \frac{-3x}{-3}$

$-8 = x$

4. $4(3x - 12) = 12x - 48$

$12x - 48 = 12x - 48$

$-12x \quad -12x$

$-48 = -48$

infinite solutions

5. $8x + 2(3x - 4) = 6x$

$8x + 6x - 8 = 6x$

$-6x \quad -6x$

$8x - 8 = 0$

$+8 \quad +8$

$\frac{8x}{8} = \frac{8}{8}$

$x = 1$

6. $3(2x - 8) = 6(4 - 3x)$

$6x - 24 = 24 - 18x$

$+18x \quad +18x$

$24x - 24 = 24$

$+24 \quad +24$

$\frac{24x}{24} = \frac{48}{24}$

$x = 2$

Pairing

7. Identify two problems, from the above set, you think are the most similar. What makes them the most similar to you?

Number 2 and number 6 are the most similar because they both have an answer of x=2. This is when I combined all the x's to one side the coefficient on x was half the value of the other side.

CLICK FOR EXAMPLES AND TEMPLATE

TEACHER NOTES

Pairing can be used as a stand-alone problem or as a conversation starter.

Pairing should be used with problems students have already completed.

There are no wrong answers as long as students have justifications for the pairing they chose.

⚠ CAUTION

Students' solutions will likely differ from yours. The goal is to draw out students' ideas.

LEVEL UP

Have students pair problems before they solve them to support their noticing of problem structure.

Have students create another problem, which is similar for the same reasons.

Ask students to explain a problem they did not select and why.