

# Reflecting on Practice: Worthwhile Tasks

## Session 3

### Using Everyday Tasks in Rich Ways



Every single instructional day does not need to be based on a profoundly deep, rich, open task.

There are places in a balanced curriculum that might be better occupied by more everyday tasks.



# Four Task Types

Memorization

Procedures  
w/Connections

Procedures  
Mathematics  
w/o Connections

Doing



Even very intentionally low threshold tasks require some prior capacity for students to engage.

That capacity is often only built through smaller, more everyday tasks designed specifically to support incremental growth.



Let's look at some typical assignments & see how to maximize their value in providing students with opportunities to learn and in providing teachers with opportunities to make sense of their students' learning.



List the opportunities to learn for both students & teachers, also make note of the prior knowledge that is required for students to participate in both math prompts.



# Sorting

**Sorting** – Given 16 different systems of equations, arrange them into groups. Create at least two different set of groupings based on shared characteristics of the systems.

$5x + y = 9$ $10x - 7y = -18$	$3x - 2y = 2$ $y = -10 - x$	$6x - 2y = 7$ $3x - y = 5$	$-14 = -20y - 7$ $10y + 4 = 2x$
$y = x^2 + 4x + 3$ $y = 2x + 6$	$2x - 3y = 6$ $6x - 18 = 9y$	$8x + y = -1$ $-3x + y = -5$	$x - y = 11$ $2x + y = 19$
$x^2 + y^2 - 4 = 0$ $2y^2 + x + 2 = 0$	$x^2 + y^2 = 25$ $x - y = 5$	$-4x - 2y = -12$ $4x + 8y = -24$	$3 + 2x - y = 0$ $-3 - 7y = 10x$
$x^2 + y^2 - 16x + 39 = 0$ $x^2 - y^2 - 9 = 0$	$-7x + y = -19$ $-2x + 3y = -1$	$x = 3y - 5$ $y = 2x + 4$	$2x - y = 3$ $y - 3 = 3x$

Solve each system by substitution.

1)  $4x + 3y = -8$   
 $-8x + y = -12$

2)  $4x - 2y = 8$   
 $y = -2$

3)  $14x - 2y = 46$   
 $-7x + y = -23$

4)  $5x + y = 8$   
 $-3x + 2y = -10$

Solve each system by elimination.

5)  $10x - 8y = 4$   
 $-5x + 3y = -9$

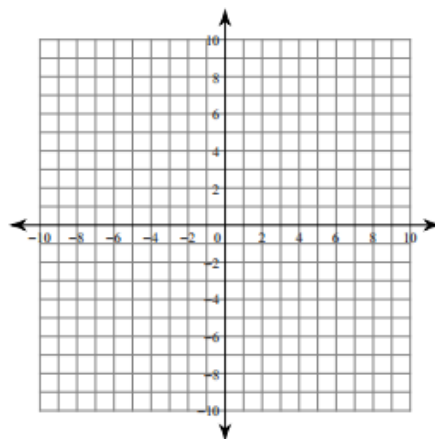
6)  $-15x + 9y = 27$   
 $-5x - y = 17$

7)  $-7x - 8y = -23$   
 $4x + 4y = 12$

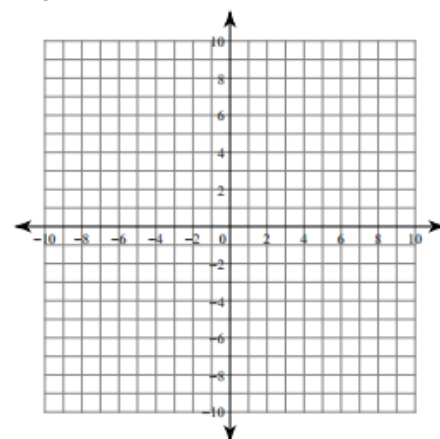
8)  $-3x - 10y = -4$   
 $x - 5y = 18$

Solve each system by graphing.

9)  $y = \frac{5}{7}x + 4$   
 $y = -\frac{1}{7}x - 2$



10)  $x = 7$   
 $y = -x + 9$

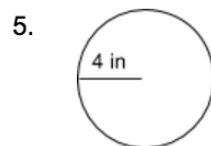


# Analysis & reflection

## Area, Perimeter and Circumference Review Sheet

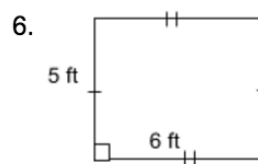
1. Suzanne is making a frame for an 8-inch by 10-inch photo. How much wood does she need for the frame?
2. The diameter of a quarter is 24 mm. What is the quarter's circumference?
3. The floor of our classroom is 50 feet by 75 feet. What is the area of our floor?
4. Each tire on your bicycle has a diameter of 26 inches. About how far will you travel when the tires make on complete revolution?

Find the area and perimeter (or circumference) of each figure.



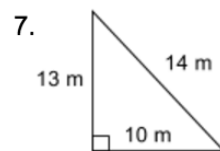
C = \_\_\_\_\_

A = \_\_\_\_\_



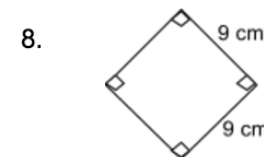
P = \_\_\_\_\_

A = \_\_\_\_\_



P = \_\_\_\_\_

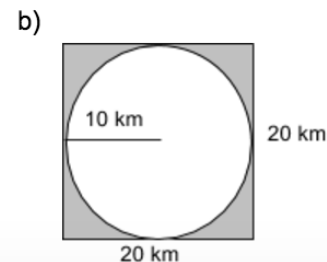
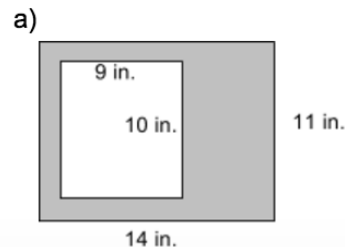
A = \_\_\_\_\_



P = \_\_\_\_\_

A = \_\_\_\_\_

9. Find the area of each shaded region.





# Possible analysis prompts:

- Which 3 problems would be hardest for you & which 3 would be easiest, and why?
- Which 3 problems do you think will be most challenging to the most students in our class and why?
- Which 3 problems do you think would be most useful to a student preparing for an assessment on this material and why?



Use the distributive property and combine like terms to rewrite each equation in standard form.

1.)  $y = -2x(x + 4)$   
 $3)(x + 3)$

2.)  $-3x + x(x - 6)$

3.)  $y = (x -$

# Using incorrect work

4.)  $y = (x - 3)(x + 2)$

6.)  $y = (x + 3)^2$

5.)  $(3x + 2)(x - 5) = y$

Each of these equations has been simplified incorrectly. For each, explain what the person was confused about the led to the mistake.

Bonus: Give another problem that might help them to see & understand their misconception.

1.)  $y = -2x(x + 4)$

$$y = -2x^2 + 8x$$

2.)  $-3x + x(x - 6) = y$

$$\begin{aligned} -3x^2 + 18x + x^2 - 6x &= y \\ -2x^2 + 12x &= y \end{aligned}$$

3.)  $y = (x - 3)(x + 3)$

$$\begin{aligned} y &= x - 3x + 3 \\ y &= -2x + 3 \end{aligned}$$

4.)  $y = (x - 3)(x + 2)$

$$y = x^2 - 6$$

5.)  $(3x + 2)(x - 5) = y$

$$\begin{aligned} 3x^2 - 15x + 2x - 10 &= y \\ 3x^2 - 13x^2 - 10 &= y \\ -10x^2 - 10 &= y \end{aligned}$$

6.)  $y = (x + 3)^2$

$$y = x^2 + 9$$



What about this work invites every student in your class to take part in a way that is productive for them and their learning?



Remember that there is no single right answer about which task to use, or how to implement it.

The right answer is whatever best supports your students in making progress towards your identified mathematical learning goal.



# Looking forward to your own practice... w/classwork, HW or test prep

what I do now...

what I intend to do differently...

what I anticipate will change and  
why...



# Good to Great...

Any change in our practice is likely to begin with a drop in productivity.

Expect that things will get worse before they get better.

Give yourself & your students time to re-acclimate.

