Questions?

October 10, 2018

AA2 Solving Equations & Inequalities

2.2.1 & 2.2.2 Equivalent Expressions

Homework:

2-88 to 2-91, 2-124 to 2-128, 2-134

Goal for today:

Be able to represent an expression in more than one way.

Does an infinity pool have a perimeter?

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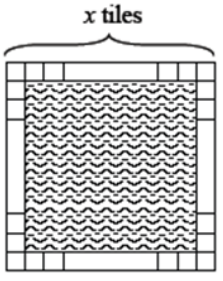
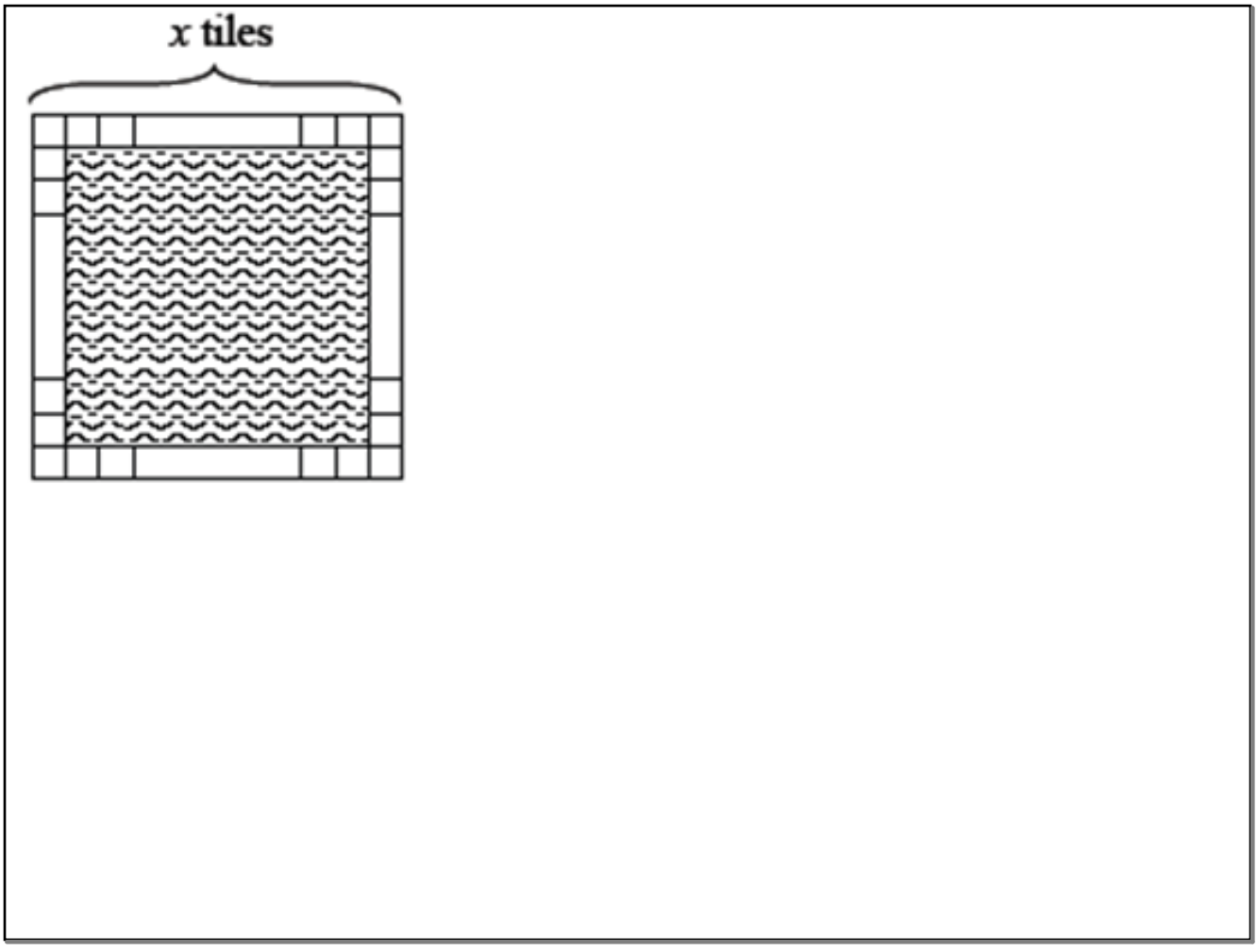
2-118. Kharim is designing a tile border to go around his new square swimming pool. He is not yet sure how big his pool will be, so he is calling the number of tiles that will fit on each side x, as shown in the diagram at right.

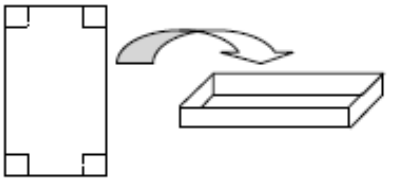


a. How can you write an algebraic expression to represent the total number of tiles Kharim will need for his border? Is there more than one expression you could write? With your team, find as many different expressions as you can to represent the total number of tiles Kharim will need for the border of his pool. Be prepared to share your **strategies** with the class.


x tiles

What about these pools? Is there an easy formula for finding the perimeter?

2-119. Jill and Jerrell were looking back at their work on problem 1-54 ("Analyzing Data from a Geometric Relationship") in Lesson 1.2.1. They had come up with two different expressions for the volume of a paper box made from cutting out squares of dimensions x centimeters by x centimeters. Jill's expression was $(15 - 2x)(20 - 2x)x$, and Jerrell's expression was $4x^3 - 70x^2 + 300x$.



a. Are Jill's and Jerrell's expressions equivalent? **Justify** your answer.

b. If you have not done so already, find an algebraic method to decide whether their expressions are equivalent. What properties did you use? Be ready to share your **strategy**.

c. Jeremy, who was also in their team, joined in on their conversation. He had yet another expression: $(15 - 2x)(10 - x)2x$. Use a **strategy** from part (b) to decide whether his expression is equivalent to Jill's and/or Jerrell's. Be prepared to share your ideas with the class.

d. Would Jeremy's expression represent the dimensions of the same paper box as Jill's and Jerrell's? Explain.

$(15 - 2x)(20 - 2x)x$

$4x^3 - 70x^2 + 300x$

$(15 - 2x)(20 - 2x)x$

$4x^3 - 70x^2 + 300x$

$(15 - 2x)(10 - x)2x$

2-123. Match the expressions on the left with their equivalent expressions on the right. Assume that all variables represent positive values. Be sure to **justify** how you know each pair is equivalent.

a.	$\sqrt{4x^2y^4}$	1.	$2x\sqrt{y}$
b.	$\sqrt{8x^2y}$	2.	$2y\sqrt{2x}$
c.	$\sqrt{4x^2y}$	3.	$2xy^2$
d.	$\sqrt{16xy^2}$	4.	$2x\sqrt{2y}$
e.	$\sqrt{8xy^2}$	5.	$4y\sqrt{x}$

2-130

True or False?

$$(x + 2)^2 = x^2 + 4 \ ?$$

2-130

True or False?

$$\sqrt{x^2 + 4} = x + 2 \ ?$$

2-130

True or False?

$$\sqrt{(x^2 + 4)^2} = x + 2 \ ?$$

Area Models

2-130

Use an area model to show $(2x - 3)(3x + 1)$ is equivalent to $6x^2 - 7x - 3$

2-131, 2-132

Use area models to find equivalent expressions.

$(5k - 3)(2k - 1)$

$(3m - 5)^2$

$2x^2 + x + 2$

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

$p(p + 3)(2p - 1)$

$x(x + 1) + (3x - 5)$

2-131, 2-132

Use area models to find equivalent expressions.

(5k - 3)(2k - 1)

2-131, 2-132

Use area models to find equivalent expressions.

$(3m - 5)^2$

2-131, 2-132

Use area models to find equivalent expressions.

$2x^2 + x + 2$

2-131, 2-132

Use area models to find equivalent expressions.

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

2-131, 2-132

Use area models to find equivalent expressions.

$p(p + 3)(2p - 1)$

2-131, 2-132

Use area models to find equivalent expressions.

$x(x + 1) + (3x - 5)$

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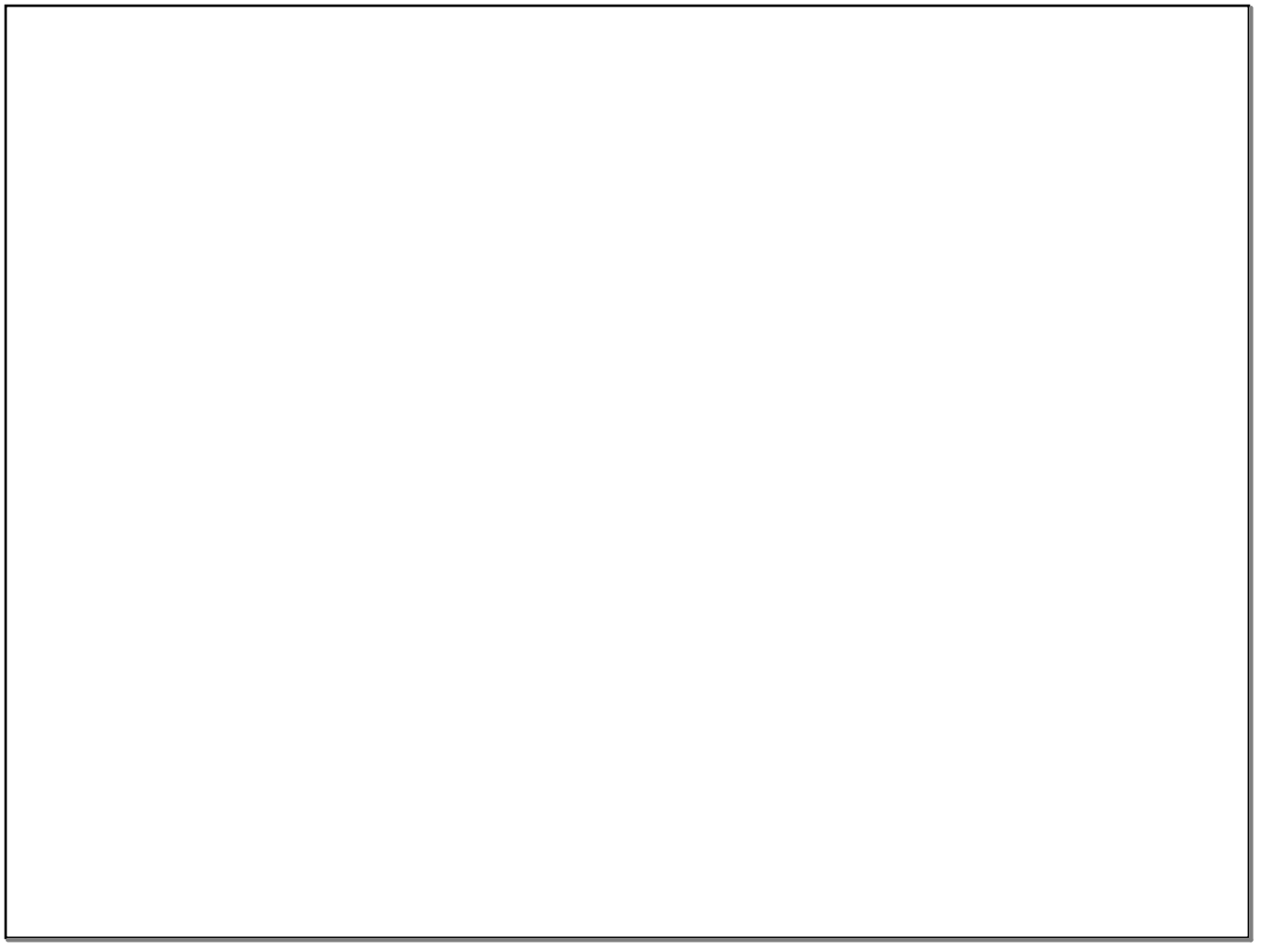

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