“They’ll Need It for High School”

Chris Hunter · K-12 Numeracy Helping Teacher
School District No. 36 (Surrey) · Surrey, BC, Canada
reflectionsinthewhy.wordpress.com · @ChrisHunter36
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Links & Resources

Related to Readiness

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Chris Hunter · https://reflectionsinthewhy.wordpress.com/2015/03/23/theyll-need-it-for-high-school-part-4/

Math Tasks

Christopher Danielson · http://talkingmathwithkids.com/2015/01/07/building-a-better-shapes-book/
Chris Hunter · https://reflectionsinthewhy.wordpress.com/2015/03/11/which-one-doesnt-belong/
Mary Bourassa · http://marybourassa.blogspot.ca/2015/03/which-one-doesnt-belong-for-calculus.html
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Peter Liljedahl · http://www.peterliljedahl.com/teachers/numeracy-tasks
Chris Hunter · https://reflectionsinthewhy.wordpress.com/2015/03/29/fair-share-pair/
NCTM · http://figurethis.nctm.org/challenges/c25/challenge.htm
Andrew Stadel · http://www.estimation180.com/day-4.html
Andrew Stadel · http://www.estimation180.com/day-133.html

NCTM Journal Articles

Boaler, Jo. 2014. “Research suggests that timed tests cause math anxiety.” *Teaching Children Mathematics.* 20 (8): 469–474.

Danielson, Christopher. 2014. “They’ll Need It for Calculus.” *Mathematics Teaching in the Middle School*. 20 (5): 260–265

Otten, Samuel. 2011. “Cornered by the Real World: A Defense of Mathematics.” *Mathematics Teacher* 105 (1): 20–25.

Professional Learning Resources

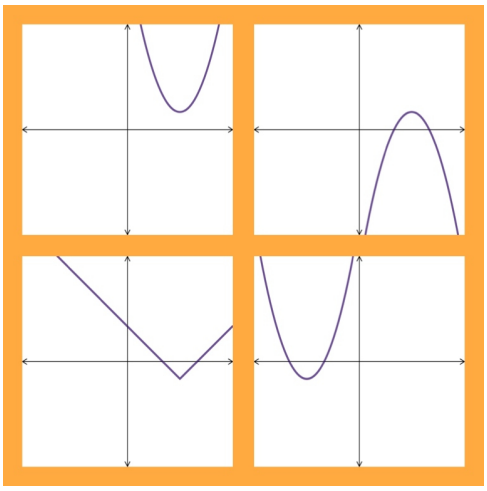
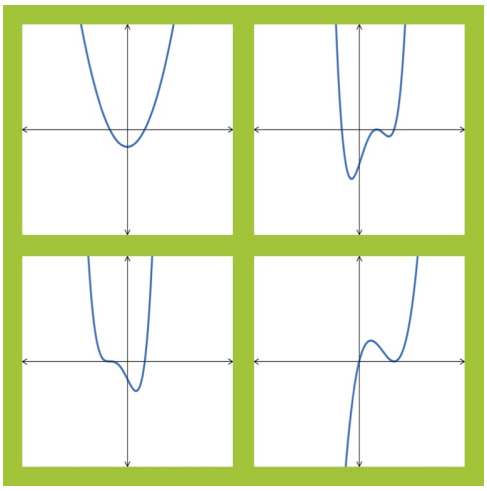
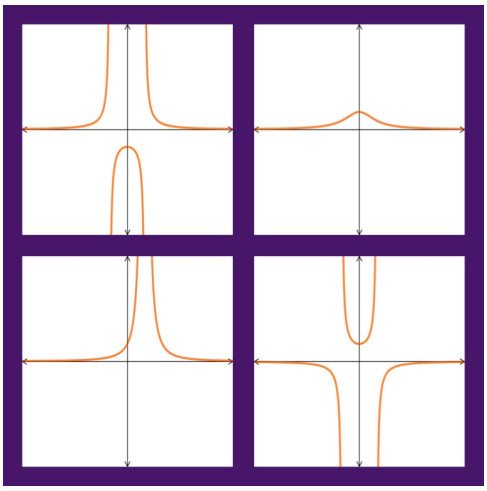
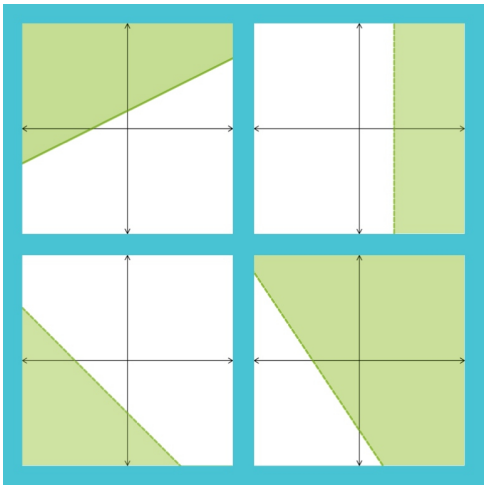
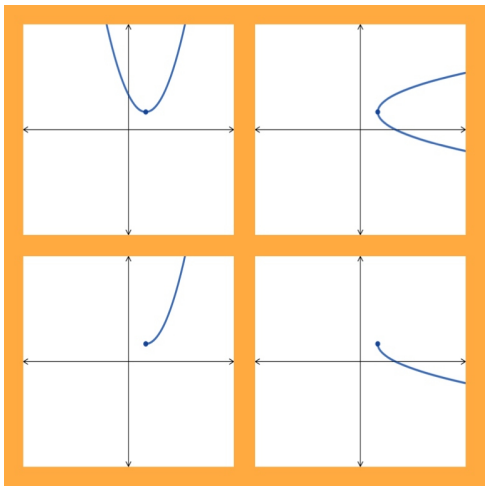
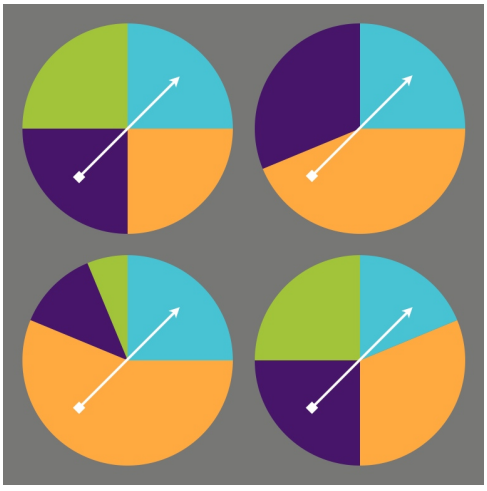
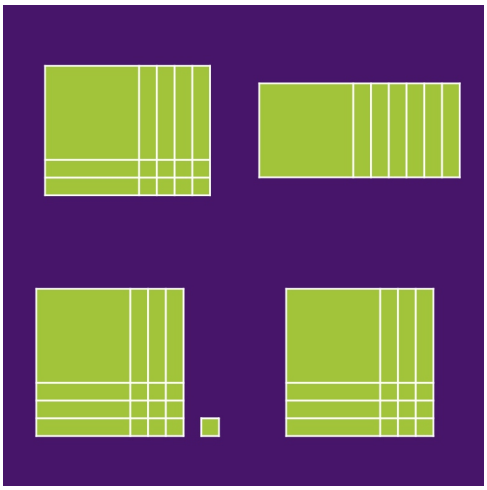
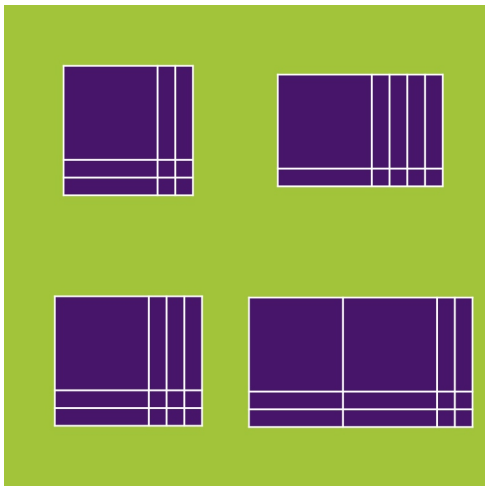
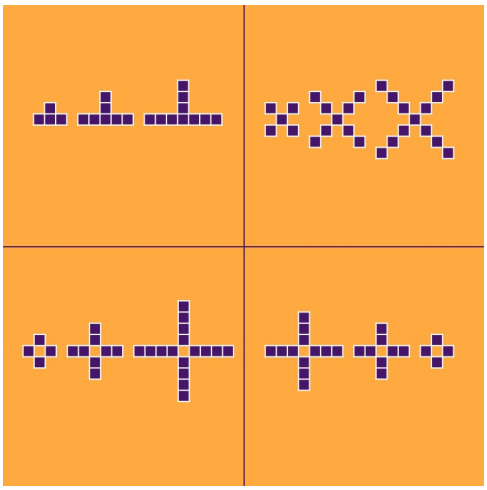
Small, Marian. 2010. *Big Ideas from Dr. Small: Creating a Comfort Zone for Teaching Mathematics Grades K–3*. Toronto: Nelson Education.

Small, Marian. 2009. *Big Ideas from Dr. Small: Creating a Comfort Zone for Teaching Mathematics Grades 4–8*. Toronto: Nelson Education.

Small, Marian, and Lin, Amy. 2011. *Big Ideas from Dr. Small: Creating a Comfort Zone for Teaching Mathematics Grades 9–12*. Toronto: Nelson Education.

Swan, Malcolm. 2005. *Improving Learning in Mathematics: Challenges and Strategies*. Department for Education and Skills Standards Unit.

Which One Doesn't Belong?

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PYTHAGOREAN MISTAKES

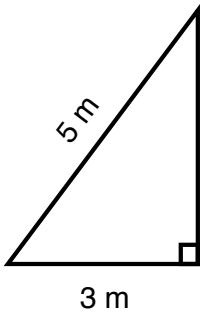
47. Find the missing side length.

$3^2 + 5^2 = X^2$

$9 + 25 = X^2$

$34 = X^2$

$X = 5.83$ m



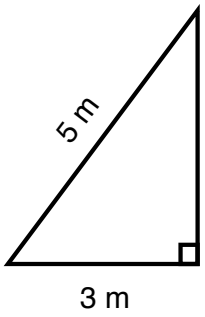
47. Find the missing side length.

$X^2 + 3^2 = 5^2$

$X^2 + 6 = 25$

$X^2 = 19$

$X = 4.36$ m



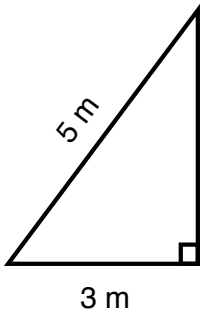
47. Find the missing side length.

$X^2 = 5^2 - 3^2$

$X^2 = 25 - 9$

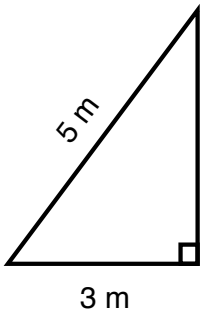
$X^2 = 16$

$X = 8$ m



47. Find the missing side length.

$5 - 3 = 2$



47. Find the missing side length.

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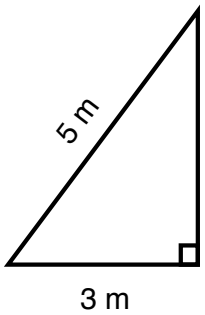

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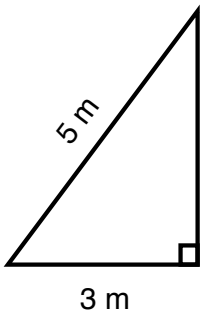

PYTHAGOREAN MISTAKES

What math mistake did each student make?
What are some implications for our work?

How Are They The Same?

Addition	Subtraction
$231+145$	$1\frac{1}{4}-\frac{1}{2}$
$2.31+1.45$	$5x-2x$
$\left(2x^2+3x+1\right)+\left(x^2+4x+5\right)$	$5\sqrt{2}-\sqrt{8}$
Multiplication	**Division**
23×14	$6\div3$
$2\frac{3}{10}\times1\frac{4}{10}$	$\left(-6\right)\div\left(+3\right)$
$\left(2x+3\right)\left(x+4\right)$	$\frac{6}{5}\div\frac{3}{5}$

How Are They The Same?

Evaluate, or simplify, each set of expressions

Make as many connections as you can:
- **conceptually & procedurally**
- **pictorially & symbolically**

Sharing Pairs

Three friends, Chris, Jeff, and Marc, go shopping for shoes. The store is having a *buy two pairs, get one pair free* sale.

Chris opts for a pair of high tops for $75, Jeff picks out a pair of low tops for $60, and Marc settles on a pair of slip-ons for $45.

The cashier rings them up; the bill is $135.

How much should each friend pay? Try to find the fairest way possible. Justify your reasoning.