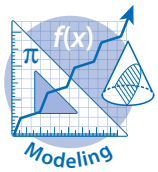
Name: **Date:**

Conceptual Task: Solution Squabble



SMP	
1	2
3 ✓	4
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Avi and Ben were doing their math homework together. When they got to the last problem, they started to argue about how to solve it. Avi thinks the problem should be solved by completing the square. Ben thinks the problem should be solved by the quadratic formula. Who did their work correctly? Which method would you choose and why? How are the two methods alike?

Avi's work	Ben's work
$2x^2 - 12x + 7 = 0$	$2x^2 - 12x + 7 = 0$
$2\left(x^2 - 6x + \_\_\_\_\_\right) - \_\_\_\_ + 7 = 0$	$x = \dfrac{12 \pm \sqrt{(-12)^2 - 4(2)(7)}}{2(2)}$
$2\left(x^2 - 6x + \left(\dfrac{6}{2}\right)^2\right) - 2\left(\dfrac{6}{2}\right)^2 + 7 = 0$	$x = \dfrac{12 \pm \sqrt{144 - 56}}{4}$
$2\left(x^2 - 6x + 9\right) - 18 + 7 = 0$	$x = \dfrac{12}{4} \pm \dfrac{\sqrt{88}}{4}$
$2(x-3)^2 - 11 = 0$	$x = 3 \pm \dfrac{2\sqrt{22}}{4}$
$2(x-3)^2 = 11$	$x = 3 \pm \dfrac{\sqrt{22}}{2}$
$(x-3)^2 = \dfrac{11}{2}$	
$\sqrt{(x-3)^2} = \sqrt{\dfrac{11}{2}}$	
$x - 3 = \pm\dfrac{\sqrt{22}}{2}$	
$x = 3 \pm \dfrac{\sqrt{22}}{2}$	

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Exploration Questions

a. Look at each step for Avi and Ben's solutions. Were there any errors made?

b. Explain what each student did for each step.

c. Which method would you choose? Why would you choose that method?

d. Look at the first few steps in each solution. What do the solutions have in common?

e. What other commonalities can someone find between the solutions? How might these methods be related?