CCSS Advanced Algebra 3 AA6 Polynomial Division Name _____

1. Use an area model to multiply $(x-2)(x^2+4x+3)$.

2. a. Explain why $(x-2)(x^2+4x+3)=x^3+2x^2-5x-6$ can be rewritten as $\frac{x^3+2x^2-5x-6}{x-2}=x^2+4x+3$.

b. We can use an area model to solve division problems as well, consider the quotient $\frac{2x^3-3x^2-18x-8}{x-4}$

i. Explain why $x-4$ is on the outside of the rectangle, while $2x^3$ is inside the rectangle.

x	$2x^3$			
-4				

ii.. If the rectangle below represents $\frac{2x^3-3x^2-18x-8}{x-4}$, What does A and B have to equal? Explain how you know.

	A			
x	$2x^3$			
-4	B			

iii. If the rectangle below represents $\frac{2x^3-3x^2-18x-8}{x-4}$, explain why $B+C=-3x^2$?

	A			
x	$2x^3$	C		
-4	B			

iv. Fill in the values where A, B and C are located. Then use a similar strategy to complete the area model. What does $\frac{2x^3-3x^2-18x-8}{x-4}=$ _____?

x	$2x^3$			
-4				

2. Practice (watch Polynomial Division if needed).

Use an area model to divide each expression below:

a. $\frac{x^3+2x^2-13x+10}{x-1}$

b. $\frac{4x^4+16x^3+13x^2-5x-3}{2x+3}$

c. $\frac{3x^4-4x^3-3x^2+19x-20}{3x-4}$

d. $\frac{x^3-1}{x-1}$

e. $\frac{x^4+3x^3-2x^2-9x-5}{x^2+2x+1}$

f. $\frac{x^4-2x^2-x-60}{x-3}$