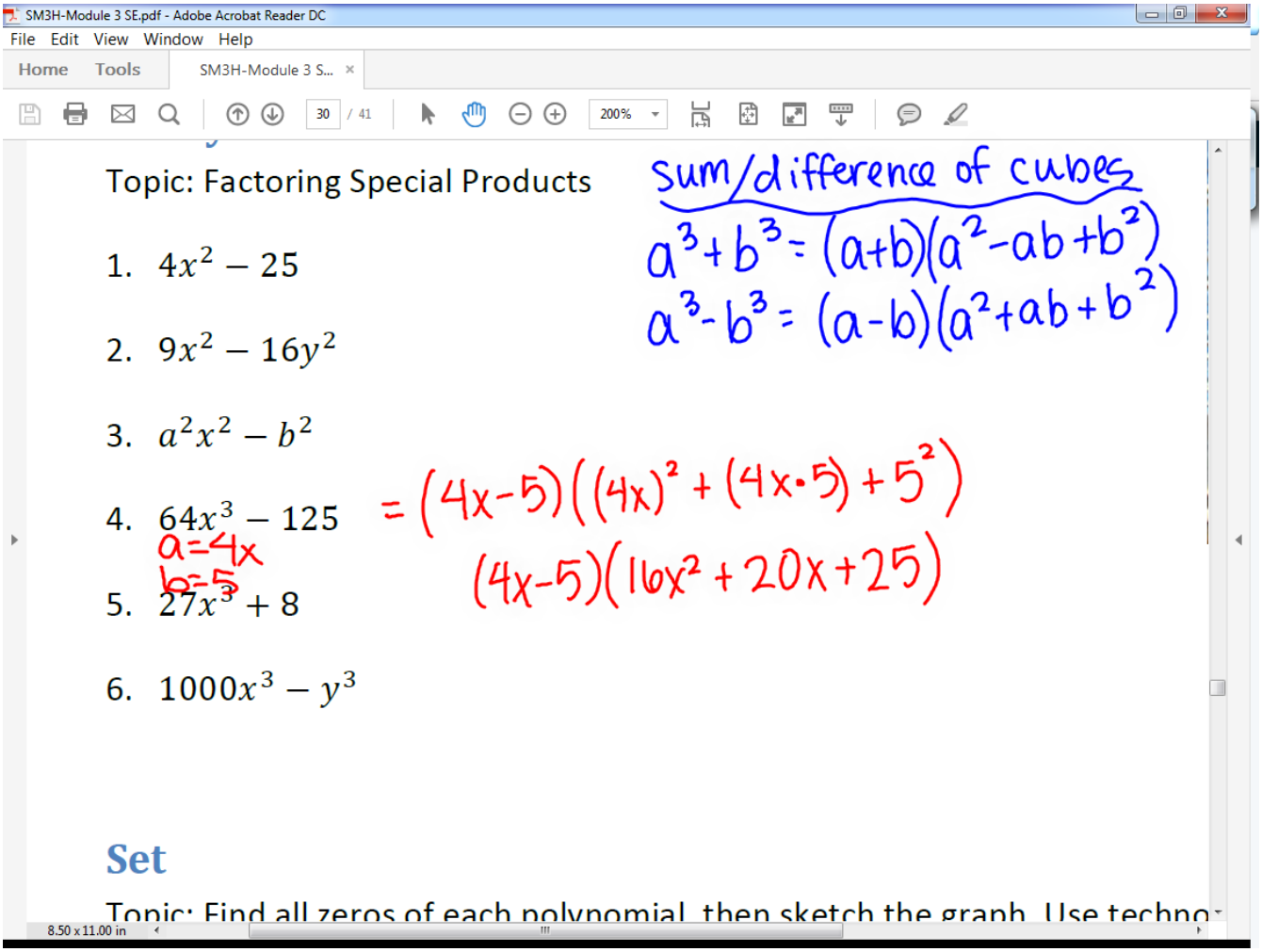
Quiz today, but first...questions on 3.6 HW?

Mar 28-10:17 AM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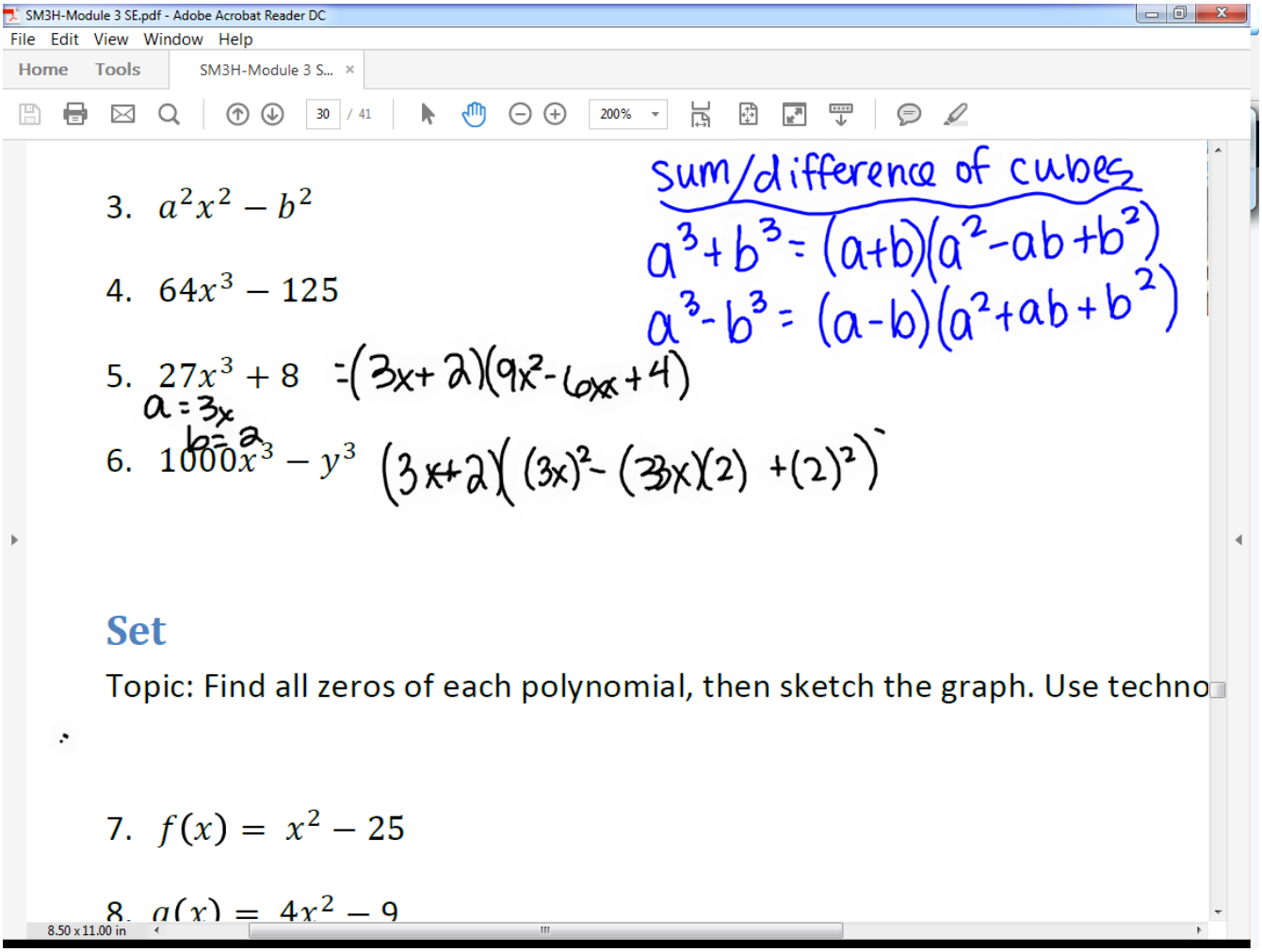
Topic: Factoring Special Products
sum/difference of cubes
$a^3+b^3=(a+b)(a^2-ab+b^2)$
$a^3-b^3=(a-b)(a^2+ab+b^2)$
1. $4x^2-25$
2. $9x^2-16y^2$
3. $a^2x^2-b^2$
4. $64x^3-125$
$=(4x-5)((4x)^2+(4x\cdot5)+5^2)$
$(4x-5)(16x^2+20x+25)$
$a=4x$
$b=5$
5. $27x^3+8$
6. $1000x^3-y^3$
Set
Topic: Find all zeros of each polynomial, then sketch the graph. Use techno
8.50 x 11.00 in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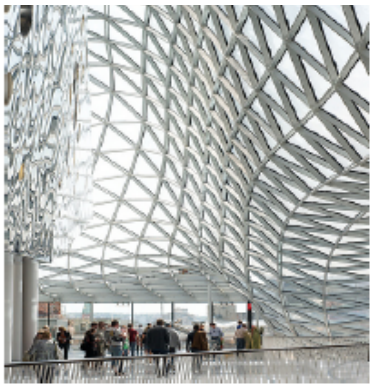
3. $a^2x^2 - b^2$
4. $64x^3 - 125$
5. $27x^3 + 8$
6. $1000x^3 - y^3$
sum/difference of cubes
$a^3+b^3=(a+b)(a^2-ab+b^2)$
$a^3-b^3=(a-b)(a^2+ab+b^2)$
$=(3x+2)(9x^2-6x+4)$
$a=3x$
$b=2$
$(3x+2)((3x)^2-(3x)(2)+(2)^2)$
Set
Topic: Find all zeros of each polynomial, then sketch the graph. Use techno
7. $f(x) = x^2 - 25$
8. $g(x) = 4x^2 - 9$
8.50 x 11.00 in

3.7 Graphing all Poly's

A Solidify Understanding Task



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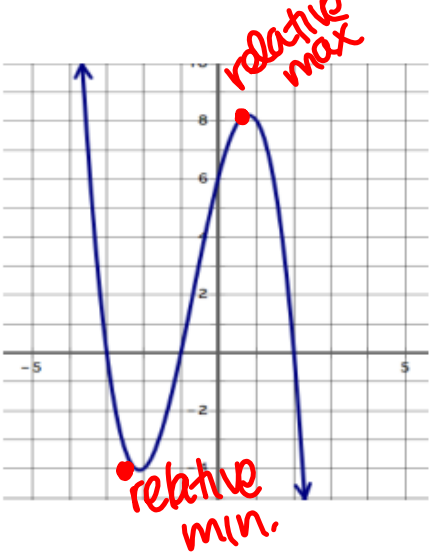
Part I: Connecting the number system to polynomials.

1. Write everything you know about the following polynomial:



x-Intercepts:
x = -1, 2, 3
(-1,0), (2,0), (3,0)
(3rd degree)

y-intercept
y = 6 (0,6)

As $x \to -\infty, f(x) \to \infty$
As $x \to \infty, f(x) \to -\infty$
} negative L. Coeff.

2. In case this was not part of what you wrote in question 1, use function notation to highlight values of importance for this function. (For example: $f(0) = 6$)

$f(-1)=0$ $f(3)=0$
$f(2)=0$ $f(0)=6$

3. The graph above gives us quite a bit of information to assist in writing the equation. What if instead you have a polynomial function written out in standard form and are given one factor, how could you determine the graph of the function?

$0=-(x+1)(x+3)(x-2)$
$0=(x^2+4x+3)(x-2)$
$0=(x^3+4x^2+3x-2x^2-8x-6)=(-x^3+2x^2+5x+6)$

For each, one factor of a cubic function is given. Do your best to find the remaining factors and then use this information to determine all roots of the function and sketch a graph.

4. Function: $f(x) = x^3 + 3x^2 - 4x - 12$ Factor: $(x + 3)$ Roots of function:

5. Function: $f(x) = x^3 + 6x^2 + 11x + 6$ Factor: $(x + 1)$ Roots of function:

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6. Function: $f(x) = x^3 + 3x^2 - 12x - 12$ Factor: $(x - 3)$ Roots of function:

7. Function: $f(x) = x^3 - x^2 + 4x - 4$ Factor: $(x - 2i)$ Roots of function:

3 roots

$(x-2i)(x+2i)(\quad)$

$x=2i, -2i,$

8. Function: $f(x) = x^3 - 3x^2 - 3x - 9$ Factor: $(x - 3)$ Roots of function:

9. Find all linear factors and graph: $f(x) = x^4 - 16$ Roots of function:

Part II: Given the roots, find the factors and write the polynomial equation in standard form.

10. Roots: 3, -4, and 0

11. Roots: 5, $2i$, $-2i$

12. Roots: $\sqrt{3}, -\sqrt{3}, -2$

13. Find the factored form of the cubic function with roots 2, $3i$ *and* ___

14. Conclusion: What have you learned about polynomial functions as a result of this task?

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Homework

3.7 "Ready, Set, Go"

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