Butterworth Math 120 Paper HW 3 , due 9/9

Reminders: Please **show all your work** neatly on this worksheet.
This should be some of your most careful work!

Name: _____

	Show your work neatly (when relevant).	*Copy down your final answer.*
1.	Factor completely: $2y^3 - 54$	
2.	Factor completely: $-18x^4 - 33x^3 + 30x^2$	
3.	Factor completely: $8x^3y - 40x^3z + 27y - 135z$	
4.	Solve using the zero factor property: $(m - 3)(m + 2) = -4$	
5.	Solve by factoring: $t^2 - 6t + 9 = 0$	
6.	Solve using the zero factor property: $3x^2 = 15x$	
7.	Solve by factoring: $25x^2 - 81 = 0$	
8.	Find the x-intercepts of the function: $f(x) = 5x^2 + 20x - 60$ Give them as ordered pairs.	
9.	A baseball is hit into the air. The height in feet of the baseball after *t* seconds is given by the function $h(t) = -16t^2 + 80t + 4$. Find the time it will take for the baseball to be 68 feet in the air.	

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10.	The length a rectangular banner can be described as being 4 feet more than twice the width. Write a function that describes the area in term of the width and then use it to find the width for the rectangular banner that has an area of 30 square feet.	
11.	Write the following in radical form: $x^{3/7}$	
12.	Write the following in exponential form: $\sqrt[5]{(3x+4)^7}$	
13.	Simplify. Do not use any approximations. $\sqrt[3]{24x^{10}y^{24}}$ Everything is under the radical even if it doesn't look like it.	
14.	Simplify. Do not use any approximations. $5\sqrt{20x} - 2\sqrt{45x} + 7\sqrt{5x}$	
15.	Simplify. Do not use any approximations. $(t+\sqrt{3})(t+\sqrt{15})$	
16.	Simplify. Do not use any approximations. $(t-\sqrt{3})(t+\sqrt{3})$	
17.	Simplify. Do not use any approximations. $(4\sqrt{x}+3)^2$	
18.	Simplify. Write as a single radical expression. $\sqrt[4]{x}\ \sqrt[5]{x}$	
19.	Rationalize the denominator: $\sqrt{\frac{3}{x}}$	
20.	Rationalize the denominator: $\frac{5x}{\sqrt[3]{x}}$	
21.	Rationalize the denominaor: $\frac{5}{3+\sqrt{x}}$	