CW # 7 5.6 Factor Theorem, Factoring by Grouping , and Sum & Difference of cubes

Name_____ Period_____

Determine if the given binomial is a factor of the polynomial P(x).

1) (x + 1) for

P(x) = $2x^4 + 2x^3 - x^2 - 5x - 4$

-1	2	2	-1	-5	-4
		-2	0	1	4
	2	0	-1	-4	0

(x+1) is a factor of P(x)

2) (x – 2) for

P(x) = $5x^3 + x^2 - 7$

2	5	1	0	-7
		10	22	44
	5	11	22	37

(x-2) is not a factor

3) (2x – 4) for

P(x) = $2x^5 - 4x^4 + 2x^2 - 4x - 4$

2	2	-4	0	2	-4	-4
		2	0	0	2	0
	1	0	0	1	0	-4

(2x-4) is not a factor

4) (x – 8) for

P(x) = $x^5 - 8x^4 + 8x - 64$

8	1	-8	0	0	8	-64
		8	0	0	0	64
	1	0	0	0	8	0

(x-8) is a factor

Factor each expression

5) $(8y^3 - 4y^2)(-50y + 25)$

$4y^2(2y-1) - 25(2y-1)$

$(4y^2-25)(2y-1)$

$\boxed{(2y-5)(2y+5)(2y-1)}$

6) $(4b^3 + 3b^2)(-16b - 12)$

$b^2(4b+3) - 4(4b+3)$

$(b^2-4)(4b+3)$

$\boxed{(b-2)(b+2)(4b+3)}$

7) $(3x^3 + x^2)(-27x - 9)$

$x^2(3x+1) - 9(3x+1)$

$(x^2-9)(3x+1)$

$\boxed{(x-3)(x+3)(3x+1)}$

8) $125+z^3$

$(5)^3+(z)^3$

$\boxed{(5+z)(5^2-5z+z^2)}$

9) $6x^4 - 162x$

$6x(x^3-27)$

$\boxed{6x(x-3)(x^2+3x+9)}$

10) $y^5 + 27y^2$

$y^2(y^3+27)$

$\boxed{y^2(y+3)(y^2-3y+9)}$