

Name _____

Date _____

Ms. Schmidt

Pre-Calculus

Factoring Perfect Cubes and Higher Powers

Kickoff- Solve each of the following:

1) $m^2 - 9m = 0$

2) $3b^2 + 6 = 11$

3) $r^2 - 3 = 22$

4) $2(x - 4)^2 = 162$

Perfect Cube- _____

Perfect Cubes	Cube Root

1) Multiply: $(a - b)(a^2 + ab + b^2)$

2) Multiply: $(a + b)(a^2 - ab + b^2)$

Sum/Difference of Perfect Cubes:

SOAP

Factor: $(a + b)^3$

Factor: $(a - b)^3$

Ex1: $x^3 + 27$

Ex2: $64x^3 - 8y^3$

Ex3: $250 + 2x^3$

Ex4: $8x^4 - x$

Higher Powers

Ex1: $x^8 - 2x^4 + 1$

Ex2: $x^4 - 7x^2 + 12$

Ex3: $x^4 + 7x^2 + 6$

Ex4: $-2r^8 + 5r^4 - 2$

Practice:

1) $x^4 + 8x^2 - 2$

3) $-27d^3 + 125$

2) $x^3 - 64$

4) $-25p^4 + 160p^2 + 320$

$$5) 10a^3 + 17a^2 + 6a$$

$$11) x^5 + x^4 - 7x^3 - 7x^2 + 12x + 12$$

$$6) -9n^{10} + 58n^5 - 24$$

$$12) x^3 - 10x^2y + 24y^2x$$

$$7) 8a^3 + 125$$

$$13) a^3 + 343b^3$$

$$8) x^3 - 216y^3$$

$$14) -a^3 - 8$$

$$9) 2x^4 - 6x^2y^2 - 108y^4$$

$$15) 250x^4 + 128x$$

$$10) -16x^4 + 58x^2 + 24$$

$$16) -2r^8 + 5r^4 - 2$$