

stay degree or ...
largest degree is 3
mult

11-7-16

Make It Happen Monday

Q: How will you make this module better than the last?

A: By taking more thorough notes.

SWBAT use Pascal's Triangle to expand binomials

* if you add 2 functions together, they stay whatever the largest degree is.

$(x+1)(x-2) = x^2 - 2x + x - 2$
 degree $x^2 - x - 2$
 Quadratic

* if you have a quadratic it will never cross the x-axis more than twice

#1 $x^2 - x - 2$

x	f(x)
-2	4
-1	0
0	-2
1	-2
2	0

#2 $x(x+1)(x+1)$

$x^2 + x + x + 1$
 $x(x^2 + 2x + 1) = x^3 + 2x^2 + 2x$

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

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

$(x+1)(x+1)(x+2)(x+2)$

$(x^2 + x + x + 1)(x^2 + 2x + 2x + 4)$

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

$x^4 - 4x^3 + 4x^2 + 2x^3 - 8x^2 + 6x$

$x^4 - 2x^3 - 4x^2 + 6x + x^2 - 4x + 4$

$x^4 - 2x^3 - 3x^2 + 4x + 4$

- the coefficients of polynomials

$(x+1)^0$	1					
$(x+1)^1$	1 + 2 + 1					
$(x+1)^2$	1 + 3 + 3 + 1					
$(x+1)^3$	1 + 4 + 6 + 4 + 1					
$(x+1)^4$	1	5	10	10	5	1

} Pascal's Triangle

$(x+1)^3$

1	3	3	1
$(x)^3$	$(x)^2$	$(x)^1$	$(x)^0$
$(1)^0$	$(1)^1$	$(1)^2$	$(1)^3$

- Coefficients from Δ
- 1st term in binomial
- 2nd term in binomial

$$x^3 + 3x^2 + 3x + 1$$

• multiply down

$(x+z)^4$

1	4	6	4	1
$(x)^4$	$(x)^3$	$(x)^2$	$(x)^1$	$(x)^0$
$(z)^0$	$(z)^1$	$(z)^2$	$(z)^3$	$(z)^4$

$$x^4 + 8x^3 + 24x^2 + 32x + 16$$

$(x+3)^4$

1	4	6	4	1
$(x)^4$	$(x)^3$	$(x)^2$	$(x)^1$	$(x)^0$
$(3)^0$	$(3)^1$	$(3)^2$	$(3)^3$	$(3)^4$

$$x^4 + 12x^3 + 54x^2 + 108x + 81$$