Power Regression

$y = ax^b$

usually fits a parabola or squrabola

Exponents & Roots Review

$$\frac{(2x^{-3}y^{4})^{2}(3x^{-1}y^{5})}{24x^{7}y^{-3}}$$

$$\frac{(4x^{-6}y^{8})(3x^{-1}y^{5})}{24x^{7}y^{-3}}$$

$$\frac{12x^{-7}y^{13}}{24x^{7}y^{-3}} \quad (-7+3,\ 13+3)$$

$$\frac{y^{16}}{2x^{14}}$$

$$\left(\frac{4x}{7y^{-2}}\right)^{-3}$$

$$\left(\frac{7y^{-2}}{4x}\right)^{3}$$

$$\frac{343y^{-6}}{64x^{3}}$$

$$\frac{343}{64x^{3}y^{6}}$$

$8^{2}\cdot 8^{-5} =$

$8^{-3} =$

$\frac{1}{8^{3}} = \frac{1}{512}$

$7a^{0}$ $(7a)^{0}$

$= 7(1)$ $= 1$

$(a^{2}bc^{5})^{0} = 1$

$$\frac{(2\times 10^{4})\cdot(3\times 10^{-7})}{4\times 10^{5}} = \frac{6\times 10^{-3}}{4\times 10^{5}} \quad (-3-5)$$

$$= \boxed{1.5\times 10^{-8}}$$

$150\times 10^{-8+2}$

$= 1.5\times 10^{-6}$

$\sqrt[4]{160 a^{10} b^{15} c^{30}}$ (4: even; a^{10}: even; b^{15}: odd; c^{30}: even)

$2^4 = 16$

$16 \cdot 10$

$2a^2b^3c^7 \sqrt[4]{10 a^2 b^3 c^2}$

even-even-odd

index — power inside root — power outside root

$\sqrt[4]{a^{2\cdot 3} b^{3\cdot 3}} \cdot \sqrt[6]{a^{2\cdot 2} b^2}$

$= \sqrt[12]{a^6 b^7} \cdot \sqrt[12]{a^4 b^2}$

$= \sqrt[12]{a^{10} b^{11}}$

Find $f^{-1}(x) =$

$f(x) = 4x^2 + 3$

$y = 4x^2 + 3$

1) Switch x & y

$x = 4y^2 + 3$

2) Solve for y

$\frac{x-3}{4} = \frac{4y^2}{4}$

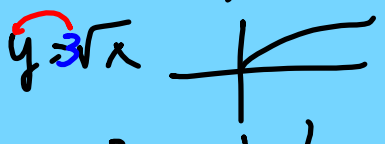
$\sqrt{\frac{x-3}{4}} = \sqrt{y^2}$

$\pm \frac{\sqrt{x-3}}{2} = y$

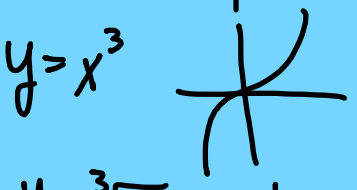
Graphing

$y = x^2$

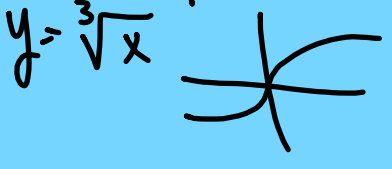
$y = \sqrt[3]{x}$



$y = x^3$



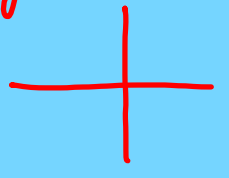
$y = \sqrt[3]{x}$



0	0
1	3
4	6
9	9

0	0
−1	1
−4	2
−9	3

$y = -\sqrt{x}$



0	0
1	−1
4	−2
9	−3

$y = \sqrt{2 - x}$

$y = \sqrt{-(x-2)}$

Right 2