Starter 3

Describe the transformations.

1. $f(x) = -\frac{1}{3}(x-4)^2 + 3$
   VST/VSH/N =
   Up/Down =
   Left/Right =
   Reflect Yes/No =

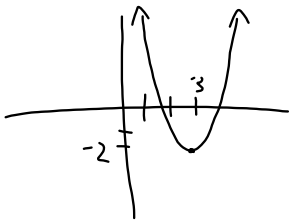
2. $f(x) = 5|x+3| - 2$
   VST/VSH/N =
   Up/Down =
   Left/Right =
   Reflect Yes/No =

3. Graph the equation $f(x) = -(x-3)^2 + 4$

Sep 12-8:00 AM

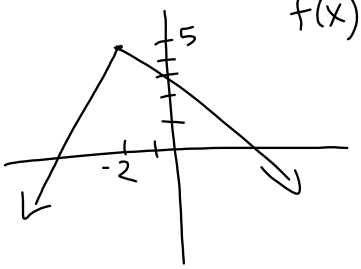
Calendar Math Review

ex 1 x^2 $f(x) = (x-3)^2 - 2$



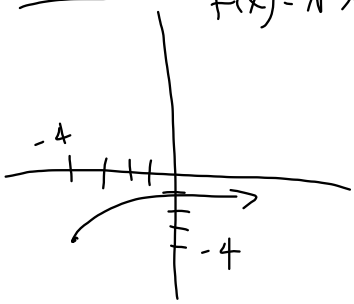
Sep 12-8:08 AM

ex 2 $|x|$ $f(x) = -|x+2|+5$



Sep 19-9:56 AM

ex 3 $\sqrt{x}$ $f(x) = \sqrt{x+4} - 4$



Sep 19-9:57 AM

2.1 Exponent Properties

Components of a radical:

$x^2 x^5$

index

$\sqrt[n]{x^m}$ → power/exponent

$\sqrt{x}$ index = 2

$\sqrt[4]{x}$ index 4

Sep 12-8:09 AM

A radical can be written as a term with a rational exponent.

Examples:

$\sqrt[n]{x^m} = x^{\frac{m}{n}}$

The index of the radical becomes the denominator while the exponent/power of the radical becomes the nomenator.

$x^{m/n} = \sqrt[n]{x^m}$

Sep 12-8:10 AM

Convert the following expressions from exponent or radical form:

Ex 1) $(4r)^{\frac{4}{3}}$ $X^{\frac{m}{n}}$ Ex 2) $\left(\sqrt[6]{k}\right)^5$ $(k)^{\frac{5}{6}}$ $X^{m/n}$

$X=(4r)$ $m=4$ $n=3$ $= \sqrt[n]{x^m}$

$\sqrt[3]{(4r)^4}$ $\sqrt[3]{4^4r^4}$ $\sqrt[3]{\sqrt{256r^4}}$

Ex 3) $n^{\frac{1}{4}}$ Ex 4) $\left(\sqrt[3]{7v}\right)^4$ $(7v)^{4/3}$

$\sqrt[4]{n^1} = \sqrt[4]{n}$

Sep 12-8:12 AM

Rational Exponent Properties (N.RN.1)

If the exponent on a term is of the form $\frac{m}{n}$, where $n \neq 0$, then the number is said to have a **rational exponent**. $8^{\frac{1}{3}}$ is an example of a constant with a rational exponent.

$9^{3/4}$ $2^{5/2}$

Sep 12-8:13 AM

All the same exponent rules apply with rational exponents as they do with integer exponents.

Properties of Integer Exponents (All bases are non-zero)	Properties of Rational Exponents (All bases are non-zero)	Examples
$x^a \cdot x^b = x^{a+b}$	Product of Powers	$3^{\frac{1}{2}} \cdot 3^{-\frac{1}{2}}$
$\frac{x^a}{x^b} = x^{a-b}$	quotient of powers property	$\frac{v^{\frac{1}{2}}}{2v^{\frac{3}{2}}}$
$(x^m)^n = x^{mn}$	power of a power property	$\left(n^{-\frac{3}{2}}\right)^{-\frac{1}{2}}$
$\left(\frac{x}{y}\right)^m = \frac{x^m}{y^m}$	power of a quotient property	$\left(\frac{x^{\frac{1}{2}}}{x^{-\frac{1}{2}}}\right)^{-\frac{3}{2}}$

Sep 12-8:13 AM

$\left(\frac{x^{1/2}}{x^{-1/2}}\right)^{-3/2} = \frac{x^{1/2 \cdot -\frac{3}{2}}}{x^{-\frac{1}{2} \cdot -\frac{3}{2}}}$

$\frac{x^{-3/4}}{x^{3/4}} \quad \frac{1}{x^{3/4} \cdot x^{3/4}}$

$\frac{1}{x^{3/4+3/4}}$

$\frac{1}{x^{6/4}} = \frac{1}{x^{2\frac{1}{2}}}$

Sep 19-10:29 AM

Sep 19-10:33 AM

$3^{1/2} \cdot 3^{-1/2}$ $X^a \cdot X^b = X^{a+b}$

$3 = X$

$3^{1/2 + (-1/2)} = 3^0 = 1$

Sep 19-8:15 AM

$\frac{V^{1/2}}{2V^{3/2}}$ $X = V$

$\frac{1}{2} V^{1/2 - 3/2} = \frac{-2}{2}$

$\frac{X^a}{X^b} = X^{a-b}$

$\frac{1}{2}V^{-3/2} = \frac{1}{2}V^{-1}$

$= \frac{1}{2V^1} = \frac{1}{2V}$

Sep 19-10:22 AM

$\left(n^{-\frac{3}{2}}\right)^{-1/2}$

$(X^m)^n = X^{mn}$

$x:n$

$m = -\frac{3}{2}$

$n = -1/2$

$n^{-3/2 \cdot -1/2}$

$n^{\frac{3}{2} \cdot \frac{1}{2}} = n^{\frac{3}{4}}$

Sep 19-10:26 AM

(7) $(6p)^{3/2}$

$\sqrt[2]{216p^3}$

$\sqrt{216p^3}$

Sep 19-8:10 AM

(9) $\frac{m^4 p^2}{n^4}$ $\frac{m^4}{n^2}$

$\frac{m^4}{n^4 \cdot n^{-2}}$ $\frac{m^4}{n^{4(-2)}}$ $\frac{m^4}{n^2}$

Sep 19-8:22 AM

(11) $3^{-3} \cdot 3^{-2}$ X

3^{-3+-2} 3^{-5}

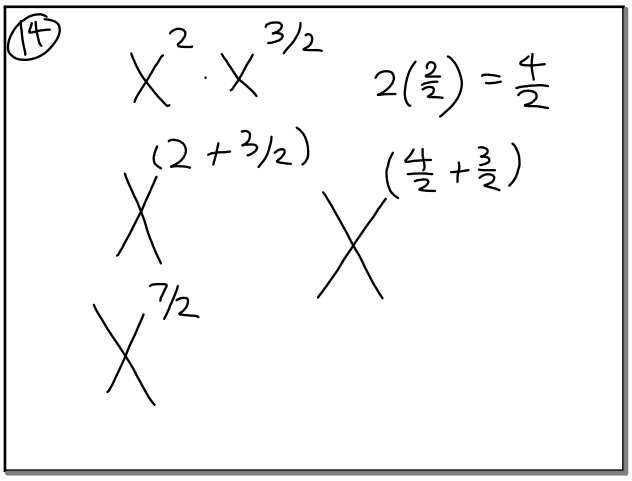
$\frac{1}{3^5}$

Sep 19-8:27 AM

(10) $3^{1/2} \cdot 3^{-1/2}$

$3^{1/2 + (-1/2)} = 3^0 = 1$

Sep 19-8:30 AM



Sep 19-8:31 AM