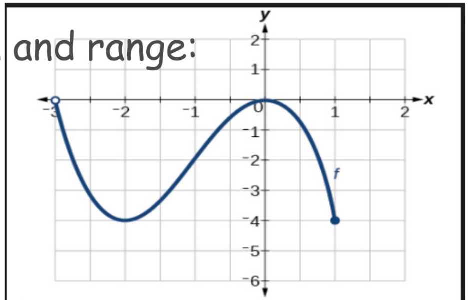
Warm-Up

1. List the eight parent functions:
abs. value   square root   rational   cube root
quad   log   exp   cubic

2. Identify the transformation: $f(x) = -(x-5)$
H.T. right 5, reflect across the x-axis

3. Identify the transformation: $f(x) = \frac{1}{(x+2)}$
H.T left 2

4. Identify the domain and range:
D: $(-3, 1]$
R: $[-4, 0)$



5. Factor $x^2 - 2x - 15$
-15; -5, 3; -2
$(x-5)(x+3)$

ACT Question of the Day:

5. If $f(x) = (3x+7)^2$, then $f(1) = ?$

A. 10
B. 16
C. 58
D. 79
E. 100

Transformation Rule

Cubic
$f(x) = a(x-h)^3 + k$

Absolute Value
$f(x) = a|x-h| + k$

Radical/Square root
$f(x) = a\sqrt{x-h} + k$

box 2: Horizontal translation left (x+

Exponential
$f(x) = a\,b^{(x-h)} + k$

box 3 Horizontal translation right (x-

box 4 Vertical traslation up $(x)^2 + k$

Quadratic
$f(x) = a(x-h)^2 + k$

box 5 vertical traslation down $(x)^2 - k$

Cube root
$f(x) = a\sqrt[3]{x-h} + k$

box 6 Reflect across x-axis -(x

log
$f(x) = a\log_b(x-h) + k$

box 7: Vertical compression 0<
(wider)

Rational
$f(x) = \frac{a}{(x-h)} + k$

box 8: Vertical stretch $a > 1$
(narrow)

Unit 1 Functions: Vertical and Horizontal Asymptotes

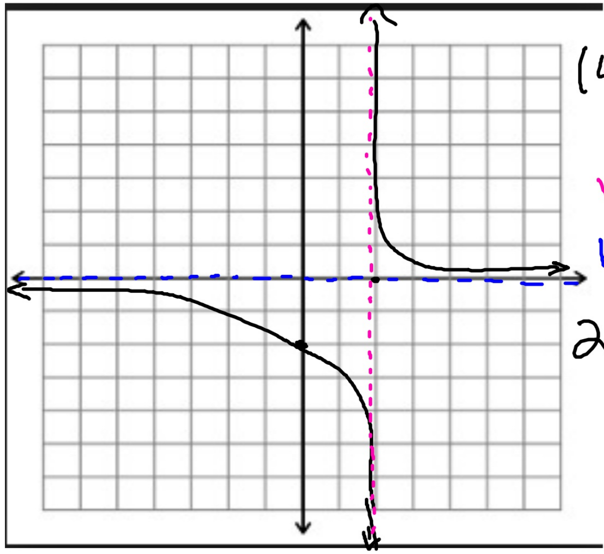
Asymptotes are (usually invisable) space that a graph gets closer and closer to but never toucehs.

Rational Function:

Vertical Asymptotes: $x =$
vertical line where the graphs seperates

Horizontal Asymptotes:
Horizontal line where the graphs seperates

$f(x) = \frac{4}{x-2}$

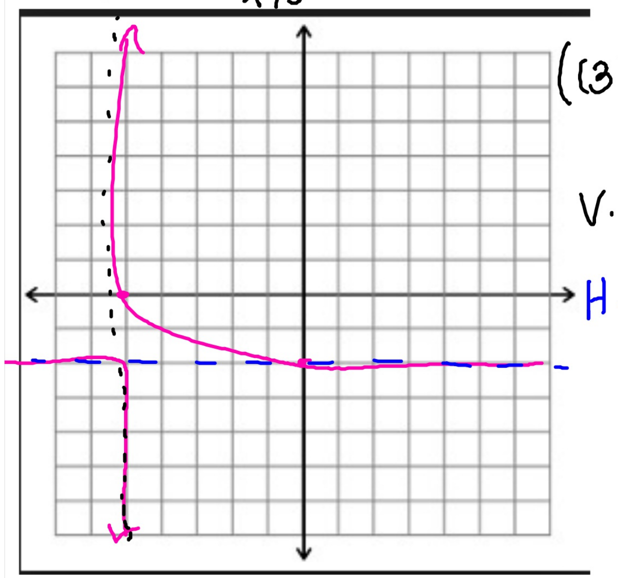


(4)/(x-2)

V.A: $x = 2$
H.A: $y = 0$

2. $x = -4$
$y = 0$

$f(x) = \frac{3}{x+5} - 2$



((3)/(x+5)) -2

V.A: $x = -5$

H.A - $y = -2$