Applications of Rational Functions

$D \div R = T$

	D	R	T
down	140	$15+x$	$\frac{140}{15+x}$
up	35	$15-x$	$\frac{35}{15-x}$

$15-x$
$x-15$

x = speed of river

$65\frac{mi}{hr} \cdot 4hr = 260\,mi$

$R \cdot T = D$

$R = \frac{A}{T}$

$T = \frac{A}{R}$

Same time

$$\frac{140}{15+x} = \frac{35}{15-x}$$

$(15+x)(15-x)$

$$140(15-x) = 35(15+x)$$

$$2100 - 140x = 525 + 35x$$

$-525 \quad -525 \quad +140x$

$$\frac{1575}{175} = \frac{175x}{175}$$

$$9\ \frac{Km}{hr} = x$$

D ÷ R = T			
down	140	15+x	$\frac{140}{15+x}$
up	140	15−x	$\frac{140}{15-x}$

boat ± river

Total trip took 4 hours.

$$\frac{140}{15+x} + \frac{140}{15-x} = 4$$

The time to go upstream was $\frac{3}{4}$ of hour more than time to go downstream.

$$\text{More Time} - \text{Less Time} = \frac{3}{4}$$

$$4(15+x)(15-x)\left[\frac{140}{15-x} - \frac{140}{15+x} = \frac{3}{4}\right]$$

$x \neq -15, 15$

#5

$$\frac{2425}{\#\text{ of people}}$$

D ÷ R = t			
#3 with	26	x+5	
against	26	x	

x = speed of barge

5 = current speed

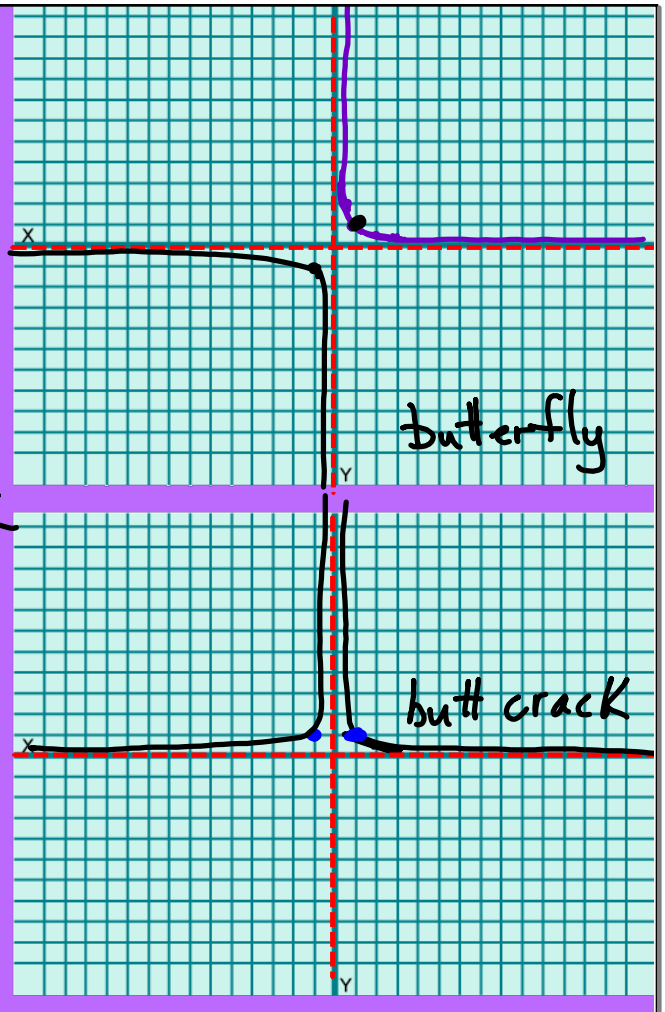
object ± (current wind)

$y = \frac{1}{x}$

x	y
0	$\frac{1}{0}$ = undef.
-1	$\frac{1}{-1} = -1$
-2	$-\frac{1}{2}$
-3	$\frac{1}{3}$
$1/2$	$\frac{1}{1/2} = 2$
$1/3$	$\frac{1}{1/3} = 3$

$y = \frac{1}{x^2}$

x	y
0	$\frac{1}{0^2}$ = undef.
-1	$\frac{1}{(-1)^2} = 1$
-2	$\frac{1}{(-2)^2} = \frac{1}{4}$
-3	$\frac{1}{(-3)^2} = \frac{1}{9}$



$y = \frac{3}{x-4} + 1$ $3 \cdot \frac{1}{x-4}$

butterfly — Right 4 — up 1

| 1 | x3 |

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

butt crack — left — up 5

| 1 | x-2 |