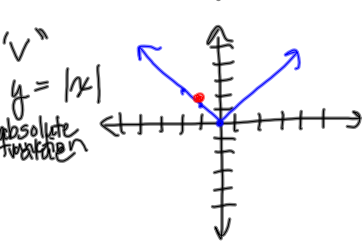
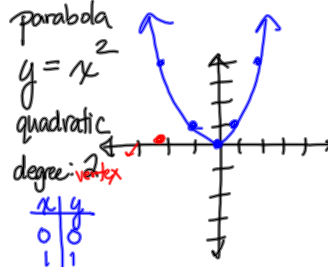
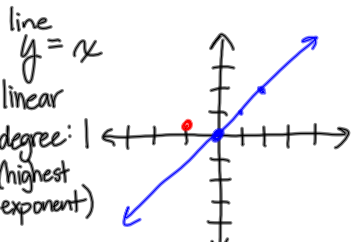


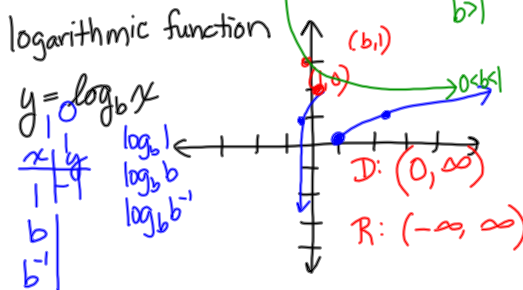
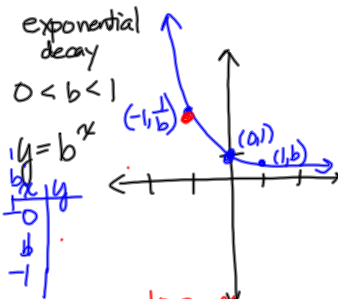
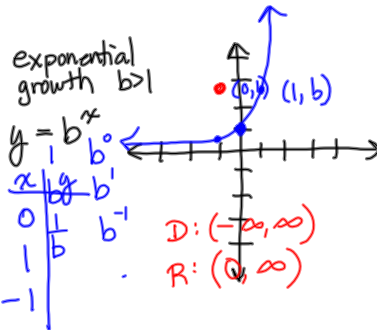
Graphs of functions [included  $\leq$  (not incl.  $<$ )  
 D: ARN  
 R:  $[0, \infty)$

Parent functions



x	y
0	1
1	b
-1	1/b

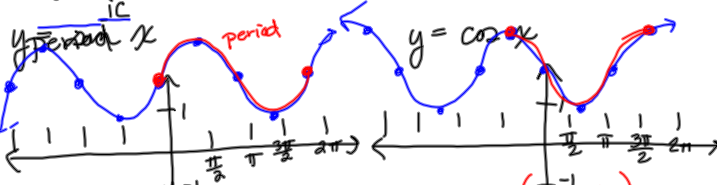
$y = b^x$   
 $y = b^{-x}$   
 $y = b^{-1}$



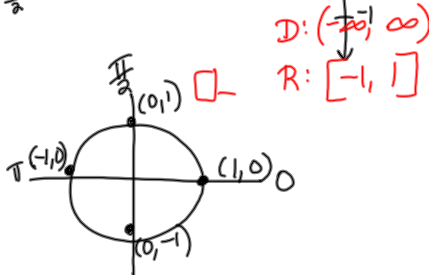
$\log_b x$

x	y
1	0
b	1
b^{-1}	-1

trigonometric functions



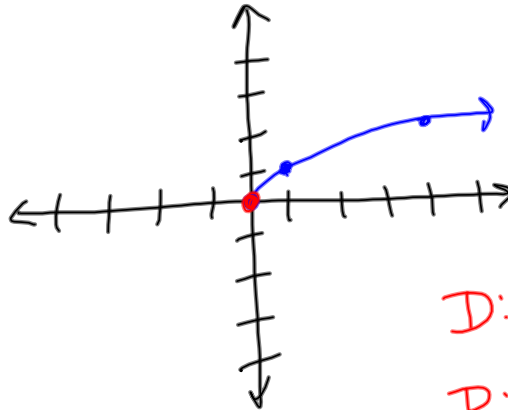
x	y
0	0
$\frac{\pi}{2}$	1
$\pi$	0
$\frac{3\pi}{2}$	-1



### square root function

$$y = \sqrt{x} \leftarrow$$

x	y	
0	0	$\sqrt{0}$
1	1	$\sqrt{1}$
4	2	$\sqrt{4}$
X -1	i	$\sqrt{-1}$

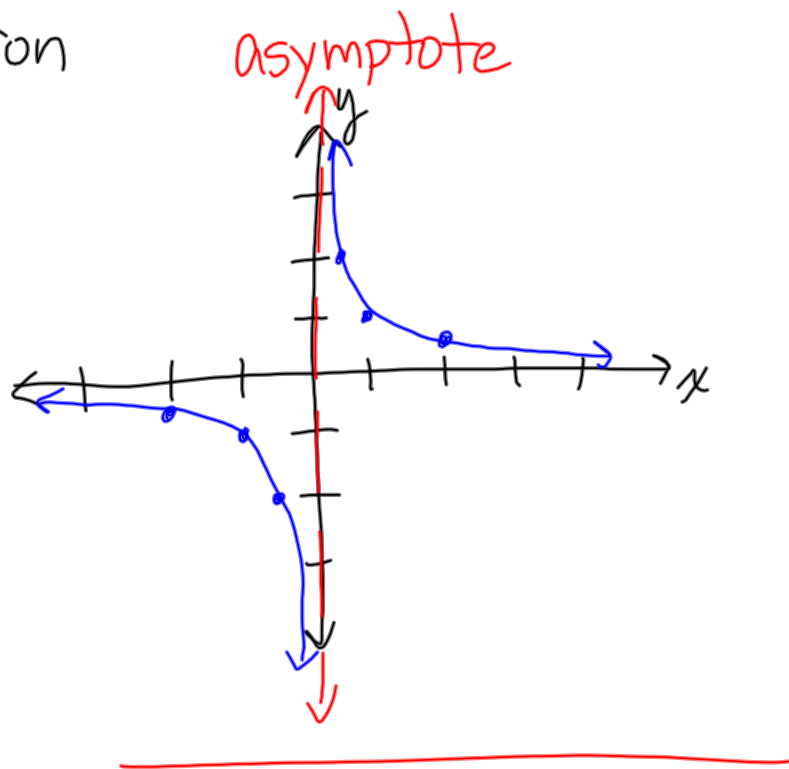


D:  $[0, \infty)$   
 R:  $[0, \infty)$

### rational function

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

x	y	
X 0	und	$\frac{1}{0}$
1	1	
-1	-1	
2	$\frac{1}{2}$	
-2	$-\frac{1}{2}$	
$\frac{1}{2}$	2	
$-\frac{1}{2}$	-2	



Convert to degrees or radians

a.  $225^\circ \cdot \frac{\pi}{180}$

$\begin{matrix} \textcircled{5} \hat{4}5 \\ \textcircled{5} \hat{9} \\ \textcircled{3} \hat{3} \end{matrix}$ 
 $\begin{matrix} \textcircled{3} \hat{6} \textcircled{2} \hat{5} \\ \textcircled{2} \hat{3} \end{matrix}$

b.  $\frac{2\pi}{3} \cdot \frac{360^\circ}{180} = \boxed{120^\circ}$

$\frac{5 \cdot \cancel{3} \cdot \cancel{3} \cdot \pi}{\cancel{3} \cdot 2 \cdot \cancel{3} \cdot 2 \cdot \cancel{3}} = \boxed{\frac{5\pi}{4}}$

\* Find the arc length and area of a sector with a radius of 2 meters and central angle of  $\theta = \frac{\pi}{2}$ .

$s = \theta r$


$s = \frac{\pi}{2} \cdot 2 = \boxed{\pi}$

$A = \frac{1}{2} \theta r^2$

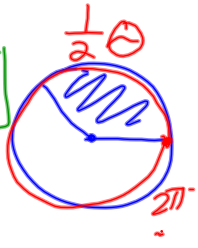
$A = \frac{1}{2} (\frac{\pi}{2}) (2)^2$

$\frac{\pi \cdot 2 \cdot 2}{2 \cdot 2} = \boxed{\pi}$

$s = \theta r$   
 $C = 2\pi r$   
 $\theta = 2\pi$



$A = \frac{1}{2} \theta r^2$   
 $A = \pi r^2$   
 $\frac{\theta}{2} = \frac{2\pi}{2} \quad \pi = \frac{\theta}{2}$



8ft.  $\theta = 135^\circ \cdot \frac{\pi}{180} \rightarrow \frac{3\pi}{4}$

$s = \theta r \rightarrow \frac{3\pi}{4} \cdot 8^2 = 6\pi$   
 $135^\circ \cdot 8$   
 $1080^\circ$

$A = \frac{1}{2} \theta r^2 = \frac{1}{2} (\frac{3\pi}{4}) (8)^2 = \frac{3\pi \cdot 8 \cdot 8}{2 \cdot 4} = \frac{3\pi \cdot 8 \cdot 8}{24} = 24\pi$

## Transformations

Shift right:  
a units

$$y = f(x - a)$$

$$y = (x + 2)^2$$

Shift left:  
a units

$$y = f(x + a)$$

Ex:

$$y = x^2$$

$$y = (x - 3)^2$$

x	y
3	0
4	1
2	1

$$(-1)^2$$

