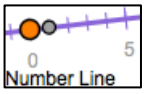
Number the Domain 1 Name:

You will restrict the domain of two of the geometric functions to a number line, adjusting the function so the dependent variable is always on the same number line. You'll measure the coordinates of both variables and describe their behavior using numbers.

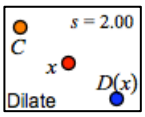
DILATE ON THE NUMBER LINE

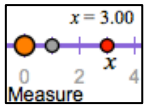
1. Open http://geometricfunctions.org/links/number-the-domain and go to page 2.

Video

2. Tap the 

tool. A number line appears on the screen. Drag the gray point (at 1 on the number line) to see what it does. Leave the number line horizontal.

3. Tap 

and attach C to the origin and x to the number line. Tap 

and measure x and $D_{C,s}(x)$. Vary x to be sure that the variables are restricted to the line.

Q1 Drag x to each number shown below, and write down the value you observe for $D_{C,s}(x)$.

$s = 2.00$			
$x = 8$ $D_{C,s}(x) =$ _____	$x = -6$ $D_{C,s}(x) =$ _____	$x = 3$ $D_{C,s}(x) =$ _____	$x = 12$ $D_{C,s}(x) =$ _____

Q2 Change the scale to 0.50 and then vary x to choose and measure four new values.

$s = 0.50$			
$x =$ _____ $D_{C,s}(x) =$ _____	$x =$ _____ $D_{C,s}(x) =$ _____	$x =$ _____ $D_{C,s}(x) =$ _____	$x =$ _____ $D_{C,s}(x) =$ _____

Q3 Change the scale to –3.00 and measure four new values. What do you notice?

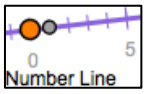
$s = -3.00$			
$x =$ _____ $D_{C,s}(x) =$ _____	$x =$ _____ $D_{C,s}(x) =$ _____	$x =$ _____ $D_{C,s}(x) =$ _____	$x =$ _____ $D_{C,s}(x) =$ _____

Q4 What do you notice about the values you just measured?

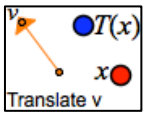
Number the Domain 2 Name:

TRANSLATE ON THE NUMBER LINE

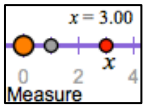
On page 3, restrict the domain of a translate function to the number line.

4. Construct a 

and make it horizontal.

5. Construct a 

function. Attach x to the number line, and attach the vector to the number line with its tail at the 0 point.

6. 

the values of x, v, and $T_v(x)$. Drag v to make its value 3.00.

Q5 Vary x to make three measurements. What do you notice?

v = 3.00			
x = 5.00 $T_v(x)$ = 8.00	x = _____ $T_v(x)$ = _____	x = _____ $T_v(x)$ = _____	x = _____ $T_v(x)$ = _____
What we noticed:			

Q6 Drag v to a negative value of your choice, and then make four pairs of measurements.

v = _____			
x = _____ $T_v(x)$ = _____	x = _____ $T_v(x)$ = _____	x = _____ $T_v(x)$ = _____	x = _____ $T_v(x)$ = _____
What we noticed:			

ON YOUR OWN

Q7 On page 4 experiment by restricting the domain of a reflect function to the number line. How must you arrange the mirror so that both the independent variable and the dependent variable are on the number line? Draw and describe your results below.

Q8 On page 5 restrict the domain of a rotate function to the number line. What angle did you use so that both the independent variable and the dependent variable are on the number line? Draw and describe your results below.