Name: ______________________________

Determining Points on a Given Equation

For each given equation, choose any 5 *x*-values to plug in, then determine the value of *y* using that *x*. Once you have each point, create an *xy* table and a list of points. Then answer the questions below.

The ***x*-values** that you choose to plug in are **input values** and are part of the **domain**. The ***y*-values** that result are **output values** and are part of the **range**.

Equation:	Determine points and write them	…as an *XY* Table…	…and as a list of points.	Critical Thinking Questions:
Example $f(x) = -7x + 4$ is the same as: $\boldsymbol{y = -7x + 4}$ *If* $x = \mathbf{-3} \rightarrow y = -7(\mathbf{-3}) + 4$ $y = 21 + 4 = \boxed{25}$ *If* $x = \mathbf{5} \rightarrow y = -7(\mathbf{5}) + 4$ $y = -35 + 4 = \boxed{-31}$ *If* $x = \mathbf{0} \rightarrow y = -7(\mathbf{0}) + 4$ $y = 0 + 4 = \boxed{4}$ *If* $x = \mathbf{25} \rightarrow y = -7(\mathbf{25}) + 4$ $y = -175 + 4 = \boxed{-171}$ *If* $x = \mathbf{-8} \rightarrow y = -7(\mathbf{-8}) + 4$ $y = 56 + 4 = \boxed{60}$	*I can pick any x that I want, but, to get a better idea of how this equation would look, I'm going to use two negatives, 0, and two positives.* If x = **-3**, then y = **25.** If x = **5**, then y = **-31**. If x = **0**, then y = **4**. If x = **25**, then y = **-171**. If x = **-8,** then y = **60**.	Domain x | Range y *Write x's from lowest to highest* -8 | 60 -3 | 25 0 | 4 5 | -31 25 | -171	*Write as (x, y) points in order from least x to greatest x.* $\{(-8, 60), (-3, 25), (0, 4), (5, -31), (25, -171)\}$	Limits on the **Domain** Is there anything that ***x*** CANNOT ever be? If yes, what? ***I can plug in any x be able to solve it. There are no limits to this domain.*** Limits on the **Range** Is there anything that ***y*** CANNOT ever be? If yes, what? ***Negative x's make y get bigger, and positive x's keep making y smaller. I don't think there is a point when y stops growing with x. There are no limits to this range.***
Example $m(x) = 5x^2$ $\boldsymbol{y = 5x^2}$ *If* $x = \mathbf{10} \rightarrow y = 5(\mathbf{10})^2$ $y = 5(100) = \boxed{500}$ *If* $x = \mathbf{-2} \rightarrow y = 5(\mathbf{-2})^2$ $y = 5(4) = \boxed{20}$ *If* $x = \mathbf{4} \rightarrow y = 5(\mathbf{4})^2$ $y = 5(16) = \boxed{80}$ *If* $x = \mathbf{0} \rightarrow y = 5(\mathbf{0})^2$ $y = 5(0) = \boxed{0}$ *If* $x = \mathbf{-6} \rightarrow y = 5(\mathbf{-6})^2$ $y = 5(36) = \boxed{180}$	Input | Output If x = **10**, then y = **500.** If x = **-2**, then y = **20**. If x = **4**, then y = **80**. If x = **0**, then y = **0**. If x = **-6,** then y = **180**.	Domain x | Range y -6 | 180 -2 | 20 0 | 0 4 | 80 10 | 500	$\{(-6, 180), (-2, 20), (0, 0), (4, 80), (10, 500)\}$	Limits on the **Domain** Is there anything that ***x*** CANNOT ever be? If yes, what? ***I can plug in any x be able to solve it. There are no limits to this domain.*** Limits on the **Range** Is there anything that ***y*** CANNOT ever be? If yes, what? ***Y gets bigger both when x grows negatively and positively. On my points, (0,0) is as low as y gets. If I plug in x=1, then y=5. For x=-1, y=5, so I think the limit is y = 0. I don't think it can get lower than that.***
1. $f(x) = 6x - 11$	Input | Output If x = ________ , then y = ________ . If x = ________ , then y = ________ . If x = ________ , then y = ________ . If x = ________ , then y = ________ . If x = ________ , then y = ________ .	Domain x | Range y	{(,), (,), (,), (,), (,)}	Limits on the **Domain** Is there anything that ***x*** CANNOT ever be? If yes, what? Limits on the **Range** Is there anything that ***y*** CANNOT ever be? If yes, what?

2. $h(x) = 12x$	Input Output If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ .	Domain x | Range y	{(,), (,), (,), (,), (,)}	Limits on the **Domain** Is there anything that ***x*** CANNOT ever be? If yes, what? Limits on the **Range** Is there anything that ***y*** CANNOT ever be? If yes, what?
3. $r(x) = -6$	Input Output If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ .	Domain x | Range y	{(,), (,), (,), (,), (,)}	Limits on the **Domain** Is there anything that ***x*** CANNOT ever be? If yes, what? Limits on the **Range** Is there anything that ***y*** CANNOT ever be? If yes, what?
4. $g(x) = 8x + 7$	Input Output If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ .	Domain x | Range y	{(,), (,), (,), (,), (,)}	Limits on the **Domain** Is there anything that ***x*** CANNOT ever be? If yes, what? Limits on the **Range** Is there anything that ***y*** CANNOT ever be? If yes, what?
5. $p(x) = \sqrt{x}$	Input Output If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ .	Domain x | Range y	{(,), (,), (,), (,), (,)}	Limits on the **Domain** Is there anything that ***x*** CANNOT ever be? If yes, what? Limits on the **Range** Is there anything that ***y*** CANNOT ever be? If yes, what?

6. $x = 10$	Input / Output If x = ________ , then y = ________ . If x = ________ , then y = ________ . If x = ________ , then y = ________ . If x = ________ , then y = ________ . If x = ________ , then y = ________ .	Domain x | Range y	{(,), (,), (,), (,), (,)}	Limits on the **Domain** Is there anything that ***x*** CANNOT ever be? If yes, what? Limits on the **Range** Is there anything that ***y*** CANNOT ever be? If yes, what?
7. $k(x) = -x^2$	Input / Output If x = ________ , then y = ________ . If x = ________ , then y = ________ . If x = ________ , then y = ________ . If x = ________ , then y = ________ . If x = ________ , then y = ________ .	Domain x | Range y	{(,), (,), (,), (,), (,)}	Limits on the **Domain** Is there anything that ***x*** CANNOT ever be? If yes, what? Limits on the **Range** Is there anything that ***y*** CANNOT ever be? If yes, what?
8. $x = -3$	Input / Output If x = ________ , then y = ________ . If x = ________ , then y = ________ . If x = ________ , then y = ________ . If x = ________ , then y = ________ . If x = ________ , then y = ________ .	Domain x | Range y	{(,), (,), (,), (,), (,)}	Limits on the **Domain** Is there anything that ***x*** CANNOT ever be? If yes, what? Limits on the **Range** Is there anything that ***y*** CANNOT ever be? If yes, what?
9. $t(x) = -7$	Input / Output If x = ________ , then y = ________ . If x = ________ , then y = ________ . If x = ________ , then y = ________ . If x = ________ , then y = ________ . If x = ________ , then y = ________ .	Domain x | Range y	{(,), (,), (,), (,), (,)}	Limits on the **Domain** Is there anything that ***x*** CANNOT ever be? If yes, what? Limits on the **Range** Is there anything that ***y*** CANNOT ever be? If yes, what?

10. $v(x) = x^2 - 4$	Input Output If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ .	Domain x | Range y	{(,), (,), (,), (,), (,)}	Limits on the **Domain** Is there anything that ***x*** CANNOT ever be? If yes, what? Limits on the **Range** Is there anything that ***y*** CANNOT ever be? If yes, what?
11. $n(x) = 9x - 5$	Input Output If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ .	Domain x | Range y	{(,), (,), (,), (,), (,)}	Limits on the **Domain** Is there anything that ***x*** CANNOT ever be? If yes, what? Limits on the **Range** Is there anything that ***y*** CANNOT ever be? If yes, what?
12. $j(x) = x^2$	Input Output If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ .	Domain x | Range y	{(,), (,), (,), (,), (,)}	Limits on the **Domain** Is there anything that ***x*** CANNOT ever be? If yes, what? Limits on the **Range** Is there anything that ***y*** CANNOT ever be? If yes, what?
13. $q(x) = \sqrt{3x}$	Input Output If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ . If x = __________ , then y = __________ .	Domain x | Range y	{(,), (,), (,), (,), (,)}	Limits on the **Domain** Is there anything that ***x*** CANNOT ever be? If yes, what? Limits on the **Range** Is there anything that ***y*** CANNOT ever be? If yes, what?