

2.2 Practice – Domain and Range (Graphs)

Name: Answer Key

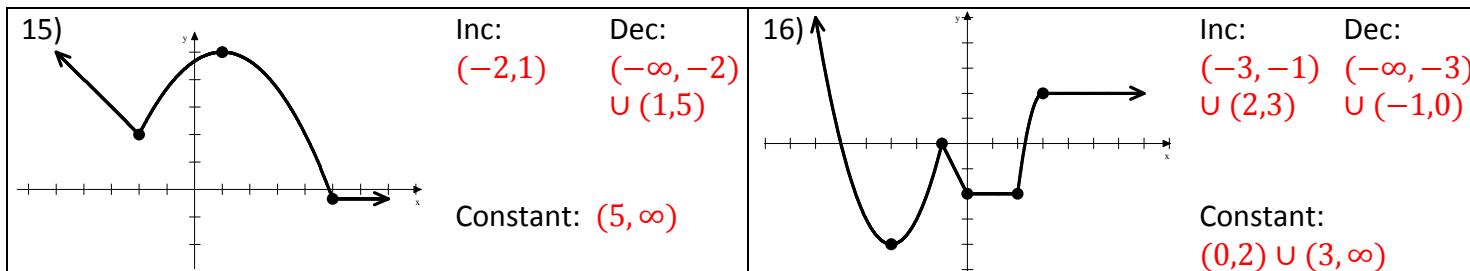
Pre-Calculus

For 1-12, name the basic function shown and write the equation. Try not to look back at your notes if possible.

Greatest Integer Function	Exponential Function	Square Root Function	Absolute Value Function
$f(x) = \text{int}(x)$	$f(x) = 2^x$	$f(x) = \sqrt{x}$	$f(x) = x $
Cosine Function	Logistic Function	Logarithm Function	Linear Function
$f(x) = \cos x$	$f(x) = \frac{1}{1 + e^{-x}}$	$f(x) = \log x$	$f(x) = x$
Sine Function	Cubic Function	Quadratic Function	Rational Function
$f(x) = \sin x$	$f(x) = x^3$	$f(x) = x^2$	$f(x) = \frac{1}{x}$

For 13-16, identify the domain intervals where each function is increasing, decreasing, and constant. Use interval notation.

13) Inc: $(-\infty, -3)$ $(-3, -2)$ Dec: $(-2, -1)$ $(1, 4)$ Constant: None	14) Inc: $(1, 4)$ Dec: $(-3, 1)$ Constant: $(-\infty, -3)$ $(4, \infty)$
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For 17-26, identify the domain and range of each function. Use both interval notation and inequality notation.			
<p>17)</p> <p>Domain: Interval: $(-\infty, \infty)$ Inequality: all real numbers</p> <p>Range: Interval: $(-\infty, 0]$ Inequality: $y \leq 0$</p>	<p>18)</p> <p>Domain: Interval: $(-1, 1]$ Inequality: $-1 < x \leq 1$</p> <p>Range: Interval: $(-1, 5]$ Inequality: $-1 < y \leq 5$</p>	<p>19)</p> <p>Domain: Interval: $[3, \infty)$ Inequality: $x \geq 3$</p> <p>Range: Interval: $[-1, \infty)$ Inequality: $y \geq -1$</p>	<p>20)</p> <p>Domain: Interval: $[0, 5)$ Inequality: $0 \leq x < 5$</p> <p>Range: Interval: $0, 1, 2, 3, 4$ Inequality: $0, 1, 2, 3, 4$</p>
<p>21)</p> <p>Domain: Interval: $[-5, 2) \cup (2, 4)$ Inequality: $-5 \leq x < 2$ and $2 < x < 4$</p> <p>Range: Interval: $[-4, -2] \cup (-1, 3)$ Inequality: $-4 \leq y \leq -2$ and $-1 < y < 3$</p>	<p>22)</p> <p>Domain: Interval: $[-4, 4)$ Inequality: $-4 \leq x < 4$</p> <p>Range: Interval: $[-2, 2]$ Inequality: $-2 \leq y \leq 2$</p>	<p>23)</p> <p>Domain: Interval: $(-\infty, \infty)$ Inequality: all real numbers</p> <p>Range: Interval: $(1, \infty)$ Inequality: $y > 1$</p>	<p>24)</p> <p>Domain: Interval: $[-5, -1) \cup [1, 5)$ Inequality: $-5 \leq x < -1$ or $1 \leq x < 5$</p> <p>Range: Interval: $[-4, -2] \cup [2, 4]$ Inequality: $-4 \leq y \leq -2$ and $2 \leq y \leq 4$</p>
<p>25)</p> <p>Domain: Interval: $[-4, 4)$ Inequality: $-4 \leq x < 4$</p> <p>Range: Interval: $[-2, 2]$ Inequality: $-2 \leq y \leq 2$</p>	<p>26)</p> <p>Domain: Interval: $(-\infty, 1) \cup (1, \infty)$ Inequality: $x \neq 1$</p> <p>Range: Interval: $(-\infty, -1) \cup (-1, \infty)$ Inequality: $y \neq -1$</p>		