

Calculus
HW 6 – Unit 1 Review No Graphing Calculator

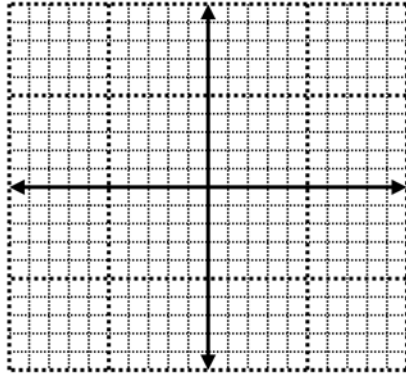
Name: _____
Date: _____ Period: _____

State the domain (prove with sign analysis/test points) and range of the following in interval notation and sketch the graph. Show all work on separate paper.

1. $y = \sqrt{x^2 - 2x - 8}$

Domain:

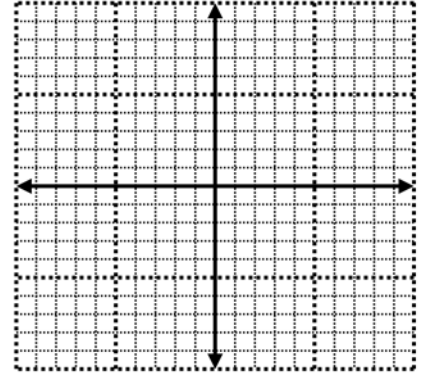
Range:



2. $y = \sqrt{7 - x}$

Domain:

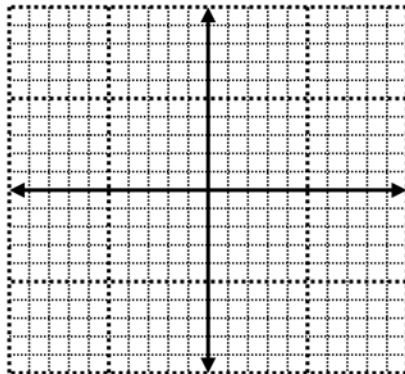
Range:



3. $y = \sqrt{16 - x^2}$

Domain:

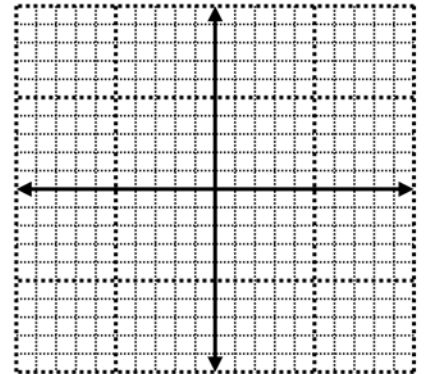
Range:



4. $g(x) = \frac{1}{x+3}$

Domain:

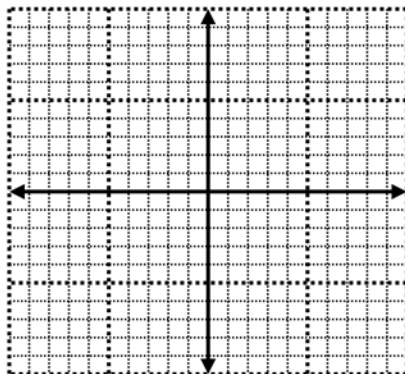
Range:



5. $h(r) = \sqrt{r^2 - 25}$

Domain:

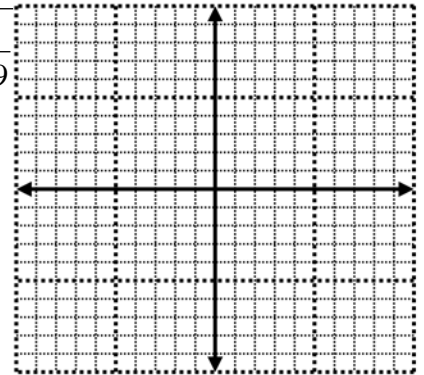
Range:



6. $f(x) = \sqrt{\frac{x+4}{x^2 - 49}}$

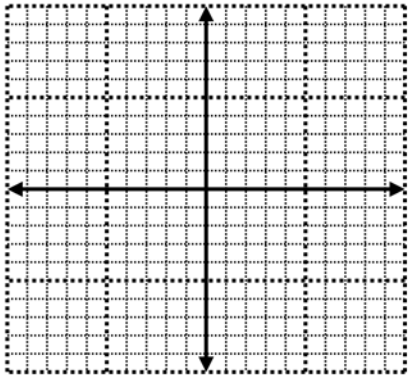
Domain:

Range:



Graph the following function and provide the requested information.

$$7. f(x) = \frac{5x-10}{x^2+x-6}$$



Domain: _____

Range: _____

Hole(s): _____

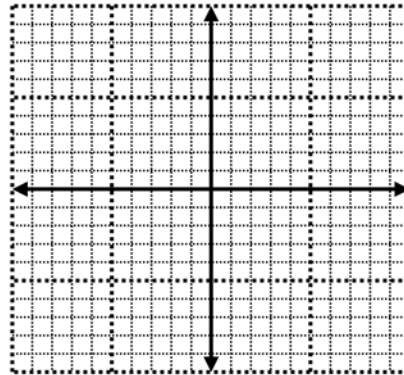
VASY: _____

HASY: _____

x-int(s): _____

y-int: _____

$$8. f(x) = \begin{cases} x^2 + 2, & x \leq 3 \\ 2 - x, & x > 3 \end{cases}$$



Domain: _____

Range: _____

x-int(s): _____

y-int: _____

Hole: _____

Let $f(x) = 4x - 5$, $g(x) = \frac{x+5}{4}$, and $h(x) = x^2 + 1$

9. Find $f(g(x))$

10. Find $h(f(x))$

11. Find $(h-f)(x)$

12. **Prove** that f and g are inverses.