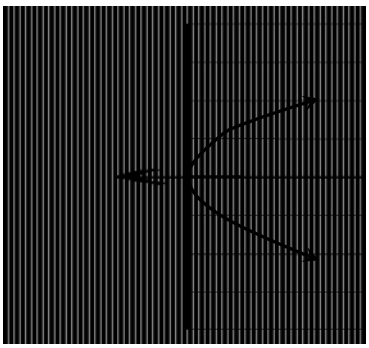
HW8 Name _____
HPC A

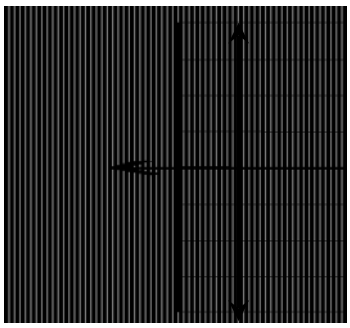
Unit 1 TEST REVIEW

Give the domain and range of the relation. State whether it's a function.

1) {(–6, 8), (–3, 8), (2, –7), (2, –9)}

3) {(–3, –5), (–1, 5), (2, –4), (7, –8)}

3) 

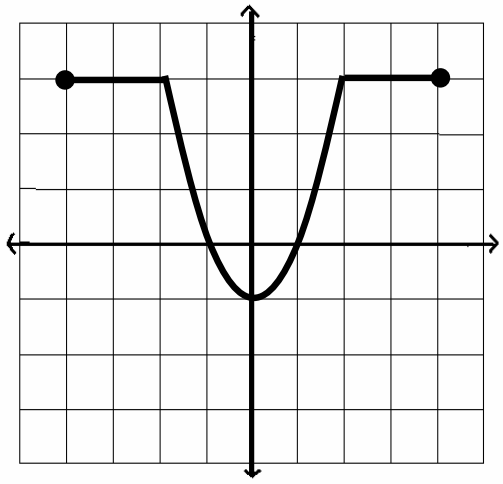
4) 

Evaluate the function at the given value of the independent variable and simplify.

5) $f(x) = 5x^2 + 2x + 3;\ \ f(x-1)$

6) $f(x) = 5x^2 + 2x + 3;\ \ f(-4m)$

Use the following graph to the right to answer the questions.



7) Domain:

8) Range:

9) *x*-intercepts:

10) *y*-intercepts:

11) Interval(s) on which *f (x)* is increasing:

12) Interval(s) on which *f(x)* is decreasing:

13) Interval(s) on which *f(x)* is constant:

14) What are the relative minimums of *f(x)*?

15) At what numbers does *f(x)* have a relative minimum?

16) *f*(2) =

17) Is *f* even, odd, or neither?

Evaluate without a calculator.

18) $\log_8(\log_{81} 9)$

19) $\log_{27}(\log 1000)$

Expand.

20) $\log_a\left(\dfrac{x^4\sqrt[3]{x+5}}{(x-2)^2}\right)$

21) $\log\left[\dfrac{2x^4\sqrt[5]{3-x}}{6(x+3)^2}\right]$

Condense.

22) $\dfrac{1}{5}\left[4\ln(x+5)-\ln x-\ln(x^2-8)\right]$

23) $\log x+\log(x^2-100)-\log 3-\log(x-10)$

Solve. Leave the exact answer.

24) $e^{2x-8}-10=1215$

25) $4^{x+4}=5^{2x+5}$

26) $\log_4(x+4)-\log_4(x-2)=3$

27) $\log_2(x+1)+\log_2(x-5)=4$

Given functions f and g, perform the indicated operations and find the domain of the resulting function.

28) $f(x) = 7x - 5, \quad g(x) = 2x - 4$

Find f – g.

29) $f(x) = 5x^2 - 7x, \quad g(x) = x^2 - 2x - 35$

Find $\frac{f}{g}$.

Given functions f and g, perform the indicated operations and find the domain of the resulting function.

30) $f(x) = 3x + 5, \quad g(x) = 6x - 6$

Find fg.

31) $f(x) = \sqrt{4x + 3}, \quad g(x) = \sqrt{4x - 16}$

Find fg.

32) $f(x) = \frac{3x}{x - 1}, \quad g(x) = \frac{5}{x + 9}$

Find f + g.

33) $f(x) = \frac{7}{x + 1}, \quad g(x) = \frac{4}{5x}$

Find $f \circ g$.

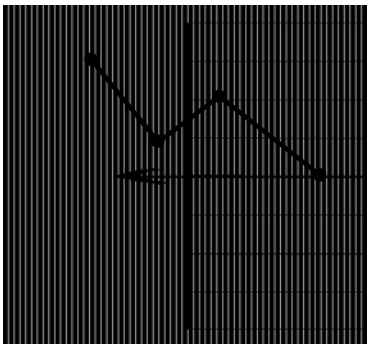
34) $f(x) = x + 1, \quad g(x) = \frac{4}{x + 6}$

Find $g \circ f$.

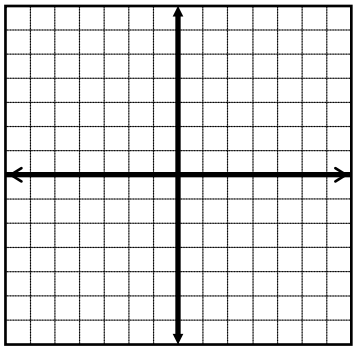
35) $f(x) = \sqrt{x}, \quad g(x) = 3x + 15$

Find $(f \circ g)(-3)$.

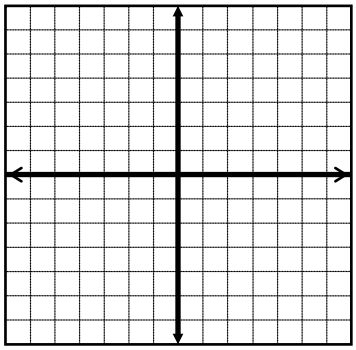
Use the following graph to graph each transformation.



36) $g(x) = -2f(x+1)$

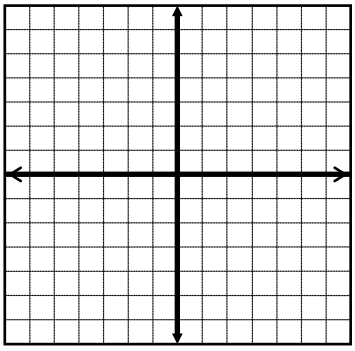


37) $h(x) = -f(-x)+1$

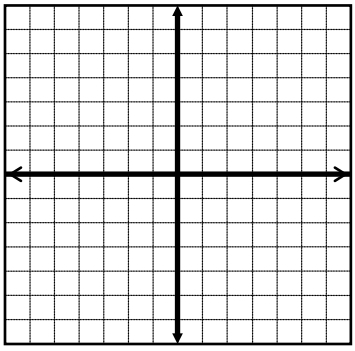


Graph the following functions.

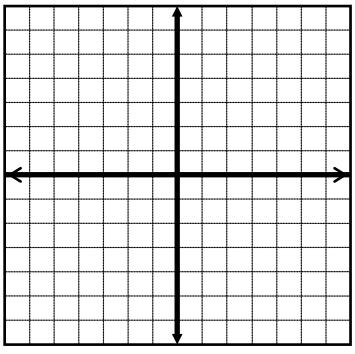
38) $f(x) = 3 - \sqrt[3]{x+1}$



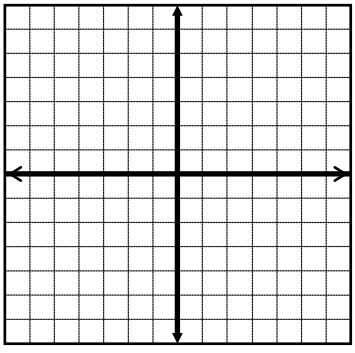
39) $f(x) = -\log_3(2x)+1$



40) $f(x) = 2e^{(x-4)} - 3$



41) $f(x) = -\frac{1}{2}|x-3|+2$



Determine if the two functions are inverses of each other.

42) $f(x)=\frac{x-3}{2}, \quad h(x)=\frac{x+3}{2}$

43) $f(x)=\frac{x-3}{2}, \quad g(x)=2x+3$

Find the inverse of each function.

44) $f(x)=\frac{2x-5}{7}$

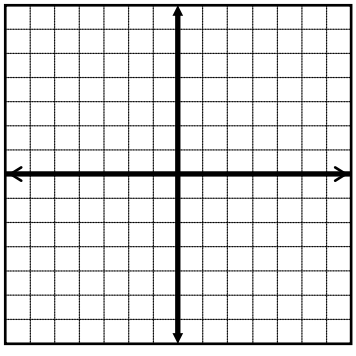
45) $f(x)=(x+3)^3$

46) $f(x)=\sqrt{x+4}$

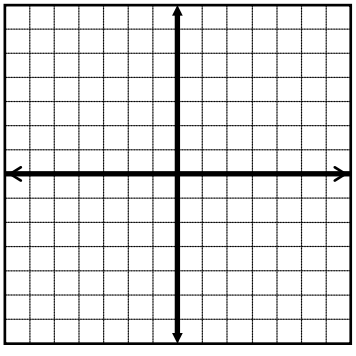
47) $f(x)=\frac{3}{8x-5}$

Graph f as a solid line and f^{-1} as a dashed line in the same rectangular coordinate plane. Find an equation for f^{-1}. Use interval notation to give the domain and range of f and f^{-1}.

48) $f(x)=x^2-3, \ x\geq 0$

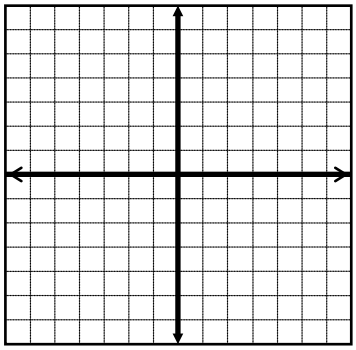


49) $f(x)=(x-3)^2, \ x\geq 3$

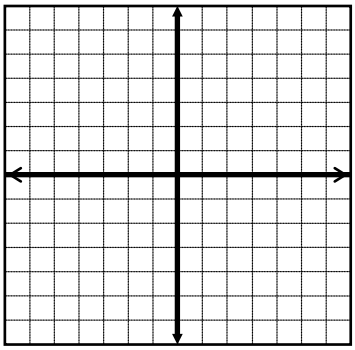


Graph the following functions. State the a) symmetry, b) y-intercept, c) x-intercept(s), d) vertical asymptote(s), e) horizontal or slant asymptote, f) hole (if any)

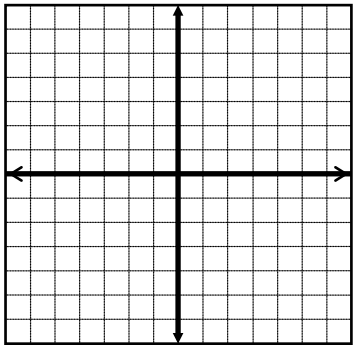
50) $f(x)=\dfrac{2x^2}{x^2-4}$



51) $f(x)=\dfrac{x+2}{x^2-4}$



52) $f(x)=\dfrac{x^2-2x-8}{x+1}$



53) $f(x)=\dfrac{x+4}{x^2-2x+1}$