

**Transformations of Functions**

Find the intercepts ( $x$  and  $y$ ) and the domain (or any values for  $x$  in which the function is undefined). Round answers to the nearest tenth when necessary. Check your solutions on a graphing utility.

1)  $f(x) = -2(x+3)^2 - 6$

2)  $g(x) = 3 - \sqrt[3]{x-1}$

3)  $g(x) = 4|x-3| - 2$

4)  $h(x) = (x+2)^3 - 27$

5)  $f(x) = \sqrt{2x+1} - 2$

6)  $g(x) = 2 + \log_4(x+3)$

**7)**  $s(x) = 3 - \frac{1}{2}e^{x-7}$

**8)**  $h(x) = 3x^2 - 2x - 1$

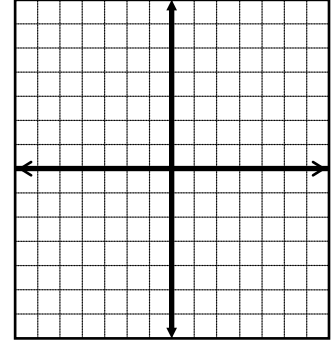
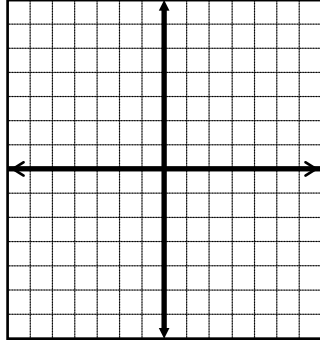
**9)**  $g(x) = x^3 + 5x^2 - 9x - 45$

**10)**  $h(x) = -2 + 3^{x+1}$



15)  $g(x) = -(x+1)^2 - 2$

16)  $g(x) = -\log_2(x+1)$

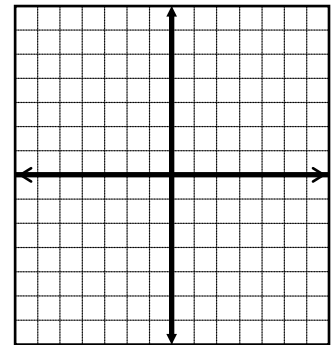
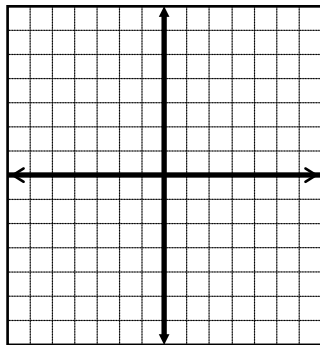


**Domain:**                      **Range:**  
**x-intercept(s):**           **y-intercept:**

**Domain:**                      **Range:**  
**x-intercept(s):**           **y-intercept:**

17)  $g(x) = 1 + e^x$

18)  $g(x) = \log_3(x-1) - 2$

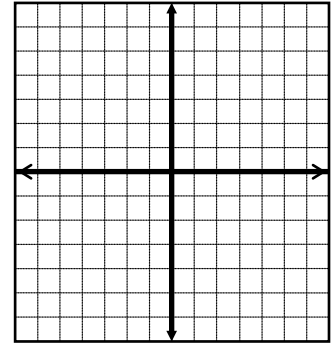
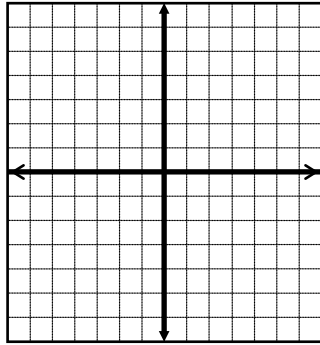


**Domain:**                      **Range:**  
**x-intercept(s):**           **y-intercept:**

**Domain:**                      **Range:**  
**x-intercept(s):**           **y-intercept:**

19)  $s(x) = -2^{x+1} + 3$

20)  $f(x) = \frac{1}{x-3}$

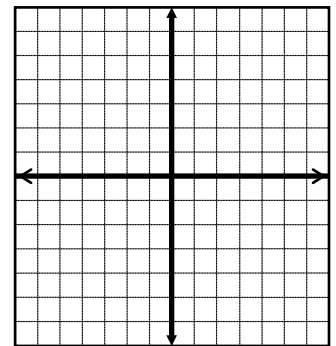
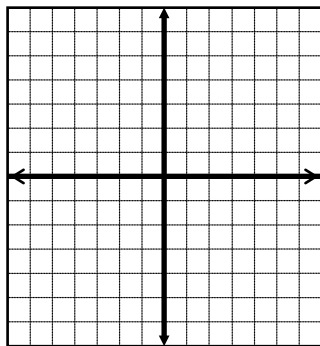


**Domain:**                      **Range:**  
**x-intercept(s):**           **y-intercept:**

**Domain:**                      **Range:**  
**x-intercept(s):**           **y-intercept:**

21)  $s(x) = 2\sqrt{-x}$

22)  $g(x) = -\sqrt[3]{x-1}$



**Domain:**                      **Range:**  
**x-intercept(s):**           **y-intercept:**

**Domain:**                      **Range:**  
**x-intercept(s):**           **y-intercept:**

Answers:

1. No  $x$ -int.;  $y$ -int =  $-24$ ; Domain =  $(-\infty, \infty)$
2.  $x$ -int. =  $28$ ;  $y$ -int =  $4$ ; Domain =  $(-\infty, \infty)$
3.  $x$ -int. =  $2.5, 3.5$ ;  $y$ -int =  $10$ ; Domain =  $(-\infty, \infty)$
4.  $x$ -int. =  $1$ ;  $y$ -int =  $-19$ ; Domain =  $(-\infty, \infty)$
5.  $x$ -int. =  $1.5$ ;  $y$ -int =  $-1$ ; Domain =  $[-0.5, \infty)$
6.  $x$ -int. =  $-2.9375$ ;  $y$ -int  $\approx 2.8$ ; Domain =  $(-3, \infty)$
7.  $x$ -int.  $\approx 8.8$ ;  $y$ -int  $\approx 3.0$ ; Domain =  $(-\infty, \infty)$
8.  $x$ -int. =  $-\frac{1}{3}, 1$ ;  $y$ -int =  $-1$ ; Domain =  $(-\infty, \infty)$
9.  $x$ -int. =  $-5, -3, 3$ ;  $y$ -int =  $-45$ ; Domain =  $(-\infty, \infty)$
10.  $x$ -int.  $\approx -0.4$ ;  $y$ -int =  $1$ ; Domain =  $(-\infty, \infty)$