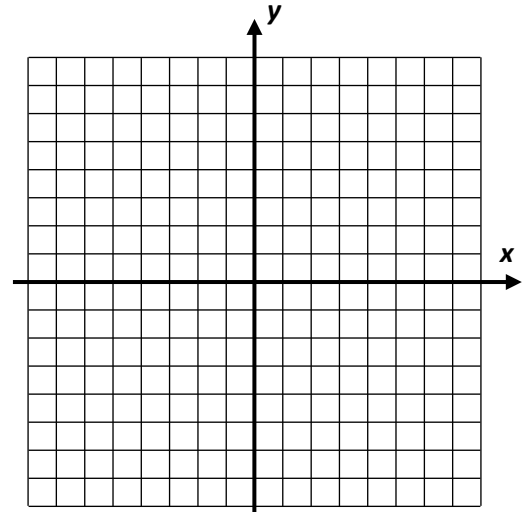


1. Consider the absolute value function $f(x) = |x + 3|$ only on the interval $-6 \leq x \leq 2$.

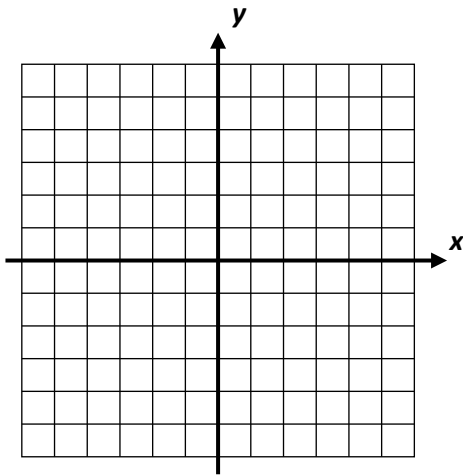
- (a) Evaluate $f(-5)$ and $f(2)$ without a calculator.
- (b) Graph this function over the interval $-6 \leq x \leq 2$. Show your table below.
- (c) Over which of the following intervals is $f(x)$ always increasing? Circle the correct choice.
 - (1) $-6 < x < -3$ (3) $-4 < x < 0$
 - (2) $-2 < x < 1$ (4) $-3 < x < 2$
- (d) State the range of $f(x)$ on this domain interval.



2. Are the two expressions $|x - 5|$ and $|x| - 5$ equivalent? Give evidence to support your yes or no answer. Remember, for expressions to be equivalent, they must have the same value for all values of the input variable, x .

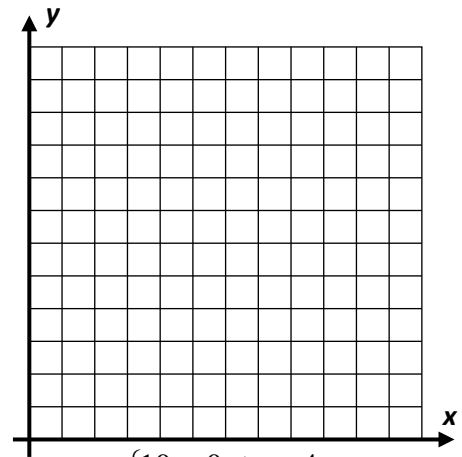
3. For each of the following **step functions**, produce a graph on the grid given.

(a)



$$f(x) = \begin{cases} -4 & -5 \leq x < 0 \\ 4 & 0 \leq x \leq 5 \end{cases}$$

(b)



$$g(x) = \begin{cases} 10 & 0 \leq x < 4 \\ 7 & 4 \leq x < 8 \\ 4 & 8 \leq x \leq 12 \end{cases}$$

R1. What is the slope and y- intercept of the line whose equation is $3x - 4y = 8$?

R2. What is the slope of the line that passes through the points $(-1, 5)$ and $(5, -1)$?

R3. Solve for x: $2(x + 4) - 3 = \frac{1}{2}(10 + 4x)$

R4. Simplify: $(3x^2 - 5)^2$

R5. If $\frac{a}{b} = 1$ and $a + b = 10$, the what is the value of ab ?

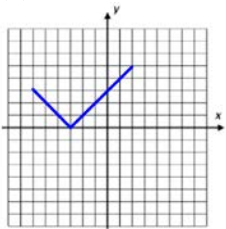
R6. Which of the following inequality transformations is *not* correct?

- A. $2x + 1 < 8 \rightarrow 2x < 7$
- B. $4(x + 1) < -5 \rightarrow 4x < -9$
- C. $3x - 4 > 0 \rightarrow 3x > 4$
- D. $5x - 7 \rightarrow 5x > 7$

1. (a) $f(-5) = 2$

$f(2) = 5$

(b)



(c) (4)

(d) $0 \leq y \leq 5$

R1. $m = \frac{3}{4}$ and $b = -2$

R2. $m = -1$

R3. Infinite solutions

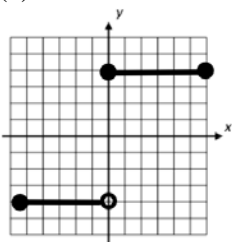
R4. $9x^4 - 30x^2 + 25$

R5. 25

R6. D

2. No. When $x = 0$, $|x - 5| = 5$ but $|x| - 5 = -5$

3. (a)



(b)

