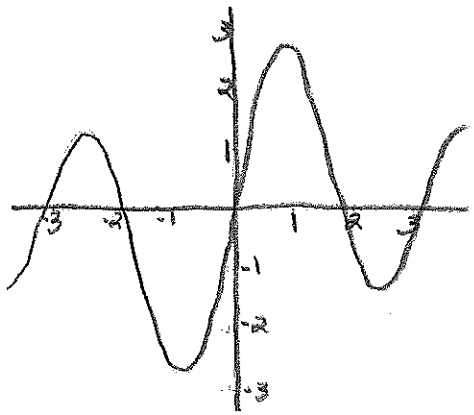
MATH 107 QUIZ 3 **NAME:** _____

1. For each graph, is the graph symmetric with respect to the *x*-axis? *y*-axis? origin?

(a)



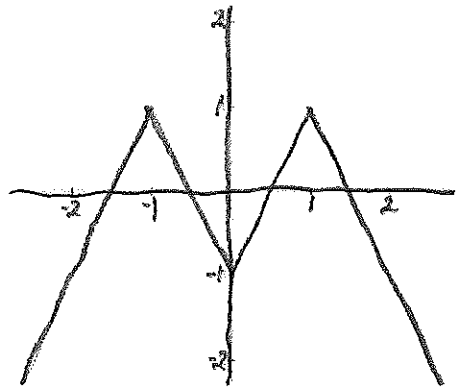
Symmetric with respect to the

x-axis? _____

y-axis? _____

origin? _____

(b)



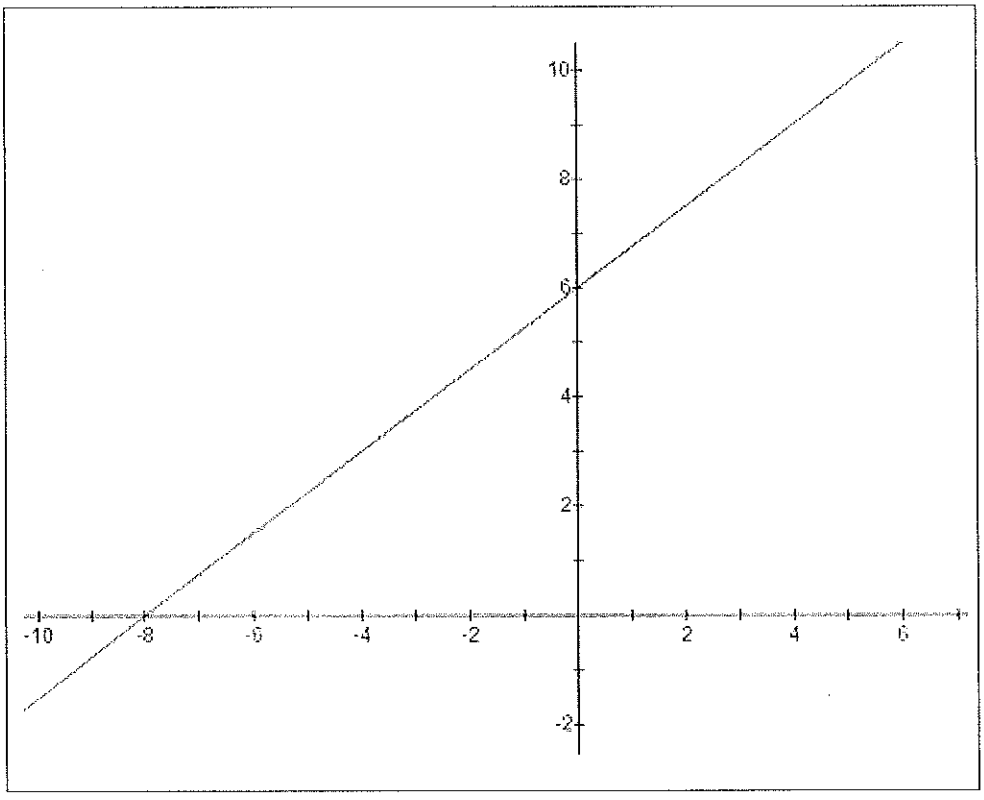
Symmetric with respect to the

x-axis? _____

y-axis? _____

origin? _____

2. Find the equation of the graph.



3. Let $f(x) = |x| - 5$.

(a) State the zero(s) of the function.

(b) Which of the following is true?

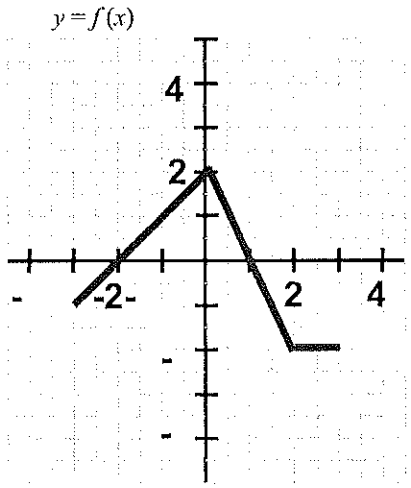
A. f is an even function.
B. f is an odd function.
C. f is both even and odd.
D. f is neither even nor odd.

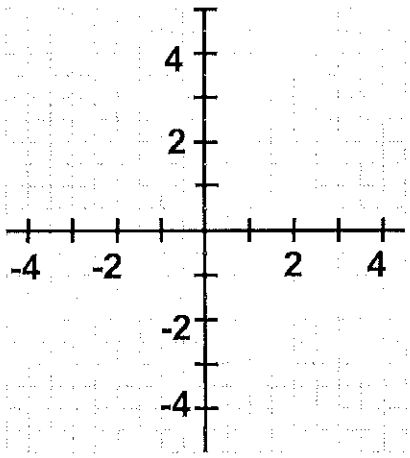
4. Consider the points $(-2, 7)$ and $(2, -1)$.

(a) Find the **slope-intercept equation** of the line passing through the two given points.

(b) Find the equation of the line perpendicular to the line from (a) and passing through the point (2, 5).

5. A graph of $y = f(x)$ follows. Graph of $y = f(x + 1) - 2$?



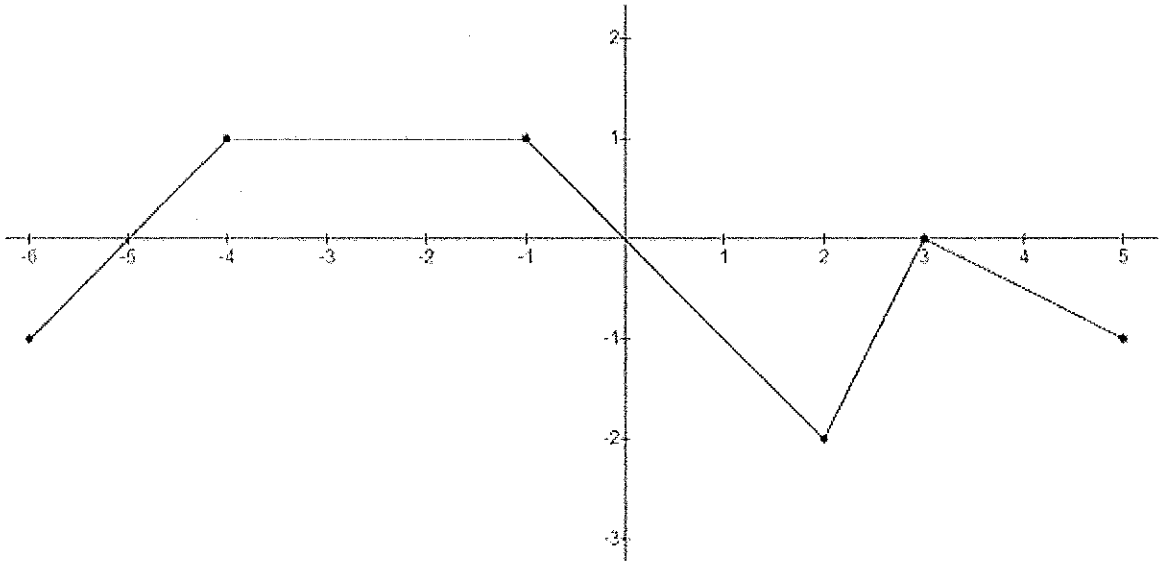


6. Mary wants to purchase custom-made t-shirts to advertise her business. Two companies offer different deals:

Company A: Pay a design fee of \$31.00, plus \$10.50 per t-shirt
or Company B: Pay a design fee of \$50.20, plus \$7.30 per t-shirt

(a) State a linear function $f(x)$ that represents Company A's total charge for an order of x t-shirts.
(b) State a linear function $g(x)$ that represents Company B's total charge for an order of x t-shirts.
(c) Mary wants to purchase 80 custom-made t-shirts, as cheaply as possible. With which company should she place his order?
(d) For what number of shirts is the total charge exactly the same for both companies?

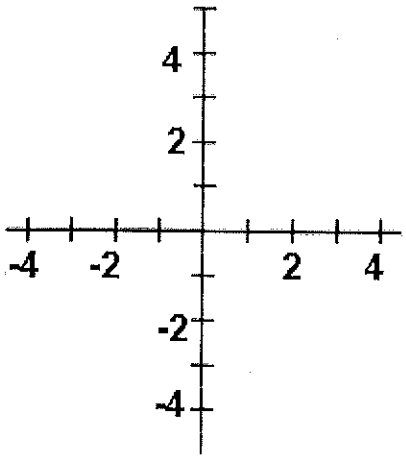
7. Consider the graph of the piecewise function $y = f(x)$ pictured below.



(a) State the value of $f(-2)$.
(b) State the x-intercept(s), if any.
(c) State the y-intercept(s), if any.
(d) State the domain of the piecewise function.
(e) State the range of the piecewise function.
(f) State the interval(s) on which the function is increasing. That is, for what x-values is the function increasing?
(g) State the interval(s) on which the function is decreasing. That is, for what x-values is the function decreasing?

8. Graph the function:

$$f(x) = \begin{cases} 4, & for\ x \geq 1 \\ -3 - x, & for\ x < 1 \end{cases}$$


4
2
-4
-2
2
4
-2
-4