

DEPARTMENT OF MATHEMATICS and COMPUTER SCIENCE
BCC, CUNY

MTH 5
Test 2 Review Problems
Chapters 3 — 5

- Solve each literal equation for given variable.
 - $5x - 9y = 23$ solve for y
 - $\frac{t}{w} = 4b - z$ solve for b
- Translate each English statement into an algebraic equation. Let x represent the number in each case.
 - 5 times the product of m and n .
 - 3 more than the product of 17 and x .
 - the product of 6 more than a number and 6 less than the same number.
 - the product of a number and 3 more than twice the same number.
 - the quotient when 5 less than a number is divided by 17.
- 15 is 20% of what number?
- What number is 45% of 60?
- In a class of 50 students, 8 fail the final exam. What percentage pass the final exam?
- A \$100 dress is on 70% off sale. What is the discounted price of the dress?
- A car sells for \$21,500. If the price goes up 2%, what will be the new price?
- Evaluate
 - 30% of 180
 - $\frac{2}{3}$ of 30

9. One number is 4 less than 3 times the other. If the sum of numbers is 36, what are the two numbers?

State the equation you used to solve the problem.

10. The length of a rectangle is 3 in. less than twice its width. If the perimeter of the rectangle is 84 in., find the dimensions of the rectangle.

State the equation you used to solve this problem.

11. Suppose 750 tickets were sold for a concert with a total revenue of \$ 5,300. If adult tickers were \$8 and students tickets were \$4.50, how many of each type of ticket were sold?

State the equation you used to solve this problem.

12. Melissa earns \$100 more per week than Julia. If their weekly salaries total \$720, how much do Melissa and Julia earn?

13. One side of a triangle is 5 in. longer than the shortest side. The third side is twice the length of the shortest side. If the triangle perimeter is 37 in., find the length of each side.

hint: use x for the shortest side, then express two other sides in terms of x . Perimeter of a triangle with sides a,b,c is $P = a + b + c$.

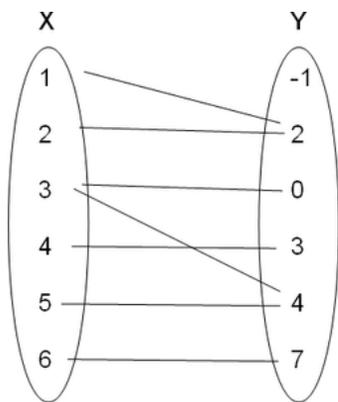
Don't forget to give the **full** answer.

14. Let $f(x) = 2x^2 - 3x + 9$. Evaluate $f(-3)$

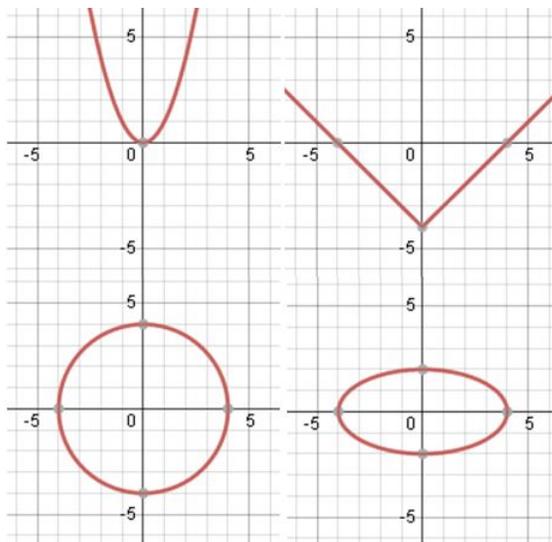
15. Does the equation $y = 2 - x^2$ define a **linear function**? Explain.

16. Does the relation $\{ (1,5), (3,6), (2,10), (5,12), (1,7), (9,-10) \}$ define a **function**? Explain.

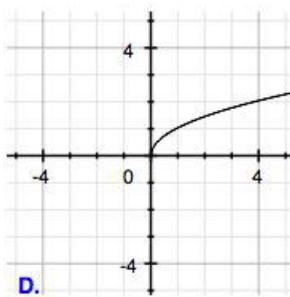
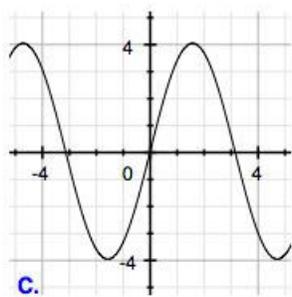
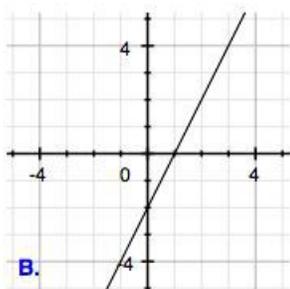
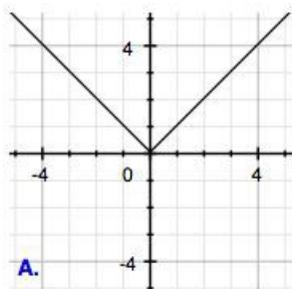
17. Does the relation below define a *function*? Explain.



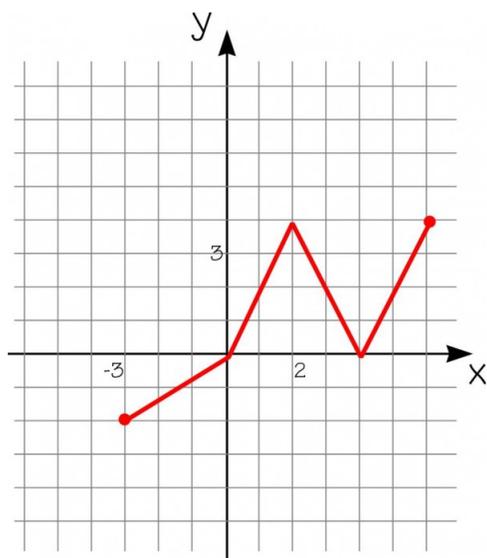
18. Which graphs below are graphs of a *function*? Explain.



19. Which graphs below are graphs of a *linear function*? Explain.



20. Consider function $f(x)$ with the graph:



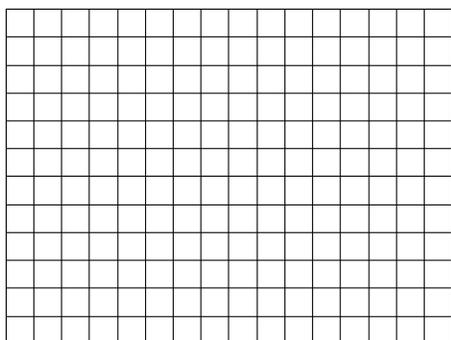
1. Find $f(-3)$
2. Find $f(3)$
3. Find all values of x , such that $f(x) = 4$

21. Determine which of the ordered pairs are solutions for the given equation.

$$2x - 3y = 6 \quad (3, 0), (6, 2), (-3, 4), (0, 2)$$

22. Plot points with the given coordinates (*use graph paper*).

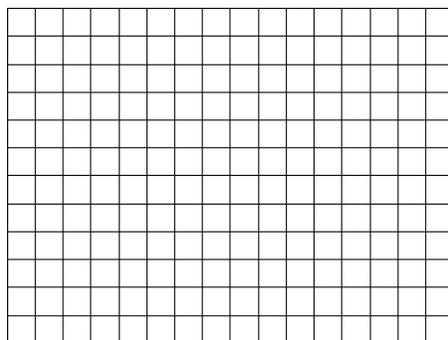
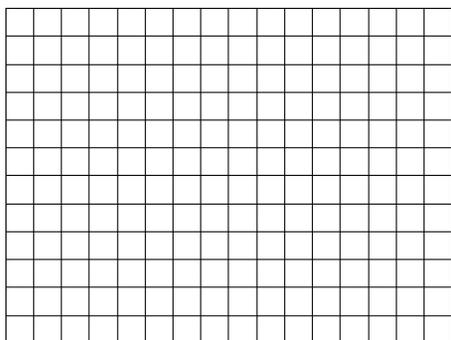
- a) $(-2, -3)$ b) $(1, -4)$ c) $(2, 0)$ d) $(0, -4)$ e) $(-3, 2)$



23. Graph the equations:

a) $5x - 3y = 15$

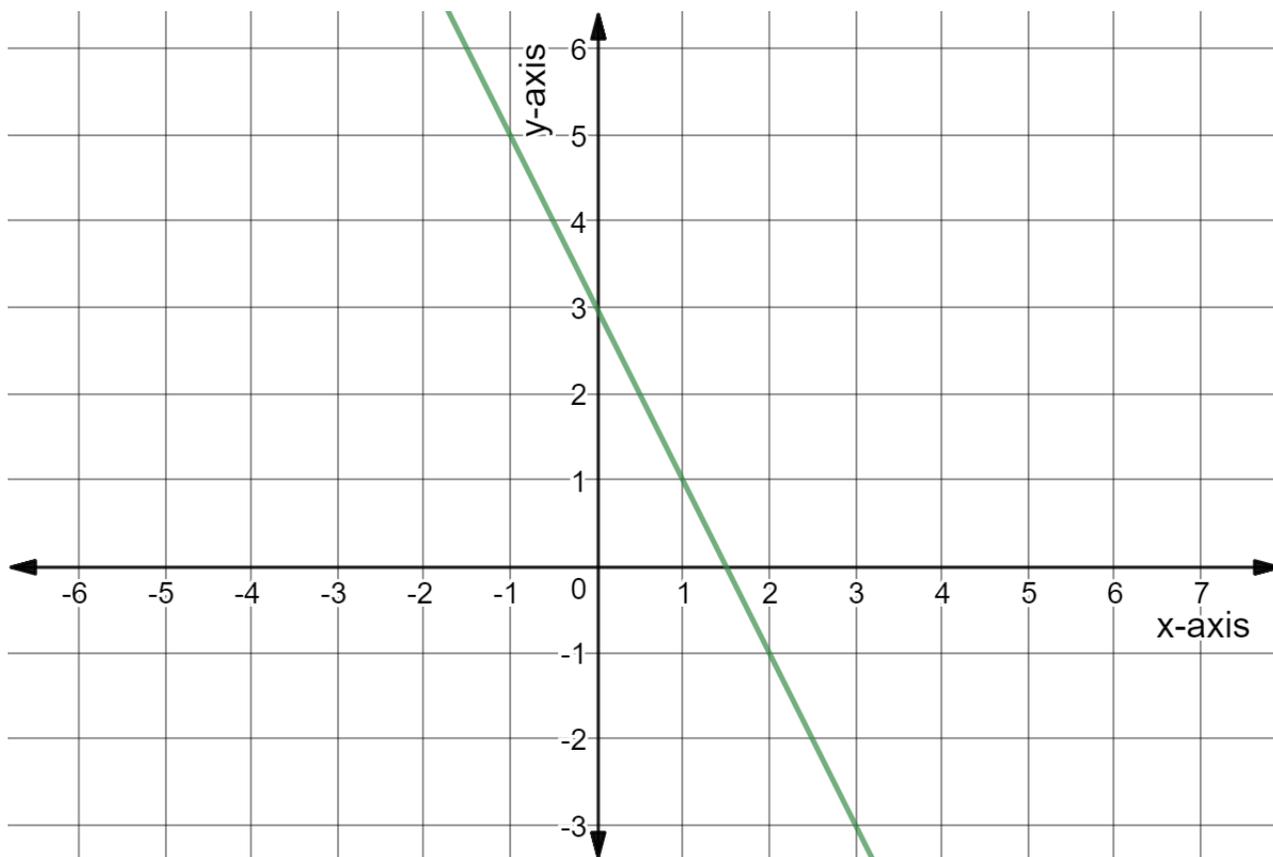
b) $y = -3x + 7$



24. The slope of the line passing through the points $(-5, -2)$ and $(1, 2)$ is

- (a) $\frac{2}{3}$ (b) 0 (c) 1 (d) $\frac{4}{5}$

25. Find the slope of the line passing through the points $(2, -6)$ and $(-5, -2)$
26. Find the slope of the line passing through the points $(-3, -6)$ and $(5, -2)$
27. Find the slope of the line using the graph:



28. The slope of the straight line with equation $2x + 3y = 12$ is
 (a) $\frac{2}{3}$ (b) 2 (c) 1 (d) $-\frac{2}{3}$
29. For the following pair of lines find whether they are **parallel**, **perpendicular** or **neither** (choose the answer bellow)?
- (a) line L_1 through the points $(-3, -2)$ and $(1, 3)$;
 line L_2 through the points $(0, 3)$ and $(4, 8)$.
- (a) lines are parallel (b) lines are perpendicular (c) neither

(b) L_1 with equation $5x - 7y = 18$;

L_2 with equation $-14x + 10y = 13$

(a) lines are parallel (b) lines are perpendicular (c) neither

30. Write an equation of the line passing through the point $(-\frac{5}{2}, -1)$, with slope m undefined.

31. Choose the equation of the line passing through the point $(-\frac{5}{2}, -1)$, with slope $m = 0$.

(a) $y = -\frac{5}{2}$ (b) $x = -\frac{5}{2}$ (c) $y = x + \frac{3}{2}$ (d) $y = -1$

32. Write an equation of the line L in the standard form, satisfying the following conditions: L passes through the point $(-2, -4)$ and has the slope $m = -\frac{5}{2}$

33. Write an equation of the line L in the slope-intercept form, satisfying the following conditions: L passes through the point $(2, -1)$ and is parallel to the line with equation $3x - 2y = 6$

34. Write an equation of the line L in the slope-intercept form, satisfying the following conditions: L passes through the point $(2, -1)$ and is perpendicular to the line with equation $3x - 2y = 5$