

The Beginners Guide to Algebra I

A Note To Our Students WELCOME! This packet is designed to help you make the transition to high school mathematics. The staff at West Chicago High School looks forward to meeting you and having a great year.

Our suggestion: First look through the whole packet and read all the directions. Begin with the problems that you recognize and are confident with—you will notice that many problems from your 8th grade math curriculum—or easier! It is suggested that you complete this packet twice. Work on problems during the month of June and then again at the end of August. An additional copy can be found by going to www.d94.org, selecting the link Academics M-Z and then Mathematics. On the left hand side will be the link Algebra I Summer Practice.

For the concepts you are unfamiliar with: There are many resources available to you on the internet. You are also provided with a Chromebook once you register for High School. Some suggested resources are khanacademy.org , YouTube and Google. Here is a list of topics you can search to help find the needed support.

- Evaluate expressions
- Order of operations
- Write expressions with variables
- Combine like terms
- Distributive property
- Solve one step equations
- Solve two step equations
- Slope
- Fraction/Decimal/Percent relationships
- Plot points on a coordinate plane

One thing is for sure: The more you do now, the easier it will be when school starts and the more comfortable you will feel with the pace of the class.

Instructions: All work can be done without a calculator. It is suggested that you attempt every problem without the use of a calculator. NEATLY show all your work for each problem. You are encouraged to try every problem. This is designed to help maximize your success at the beginning of the school year. BRING THE PACKET ON THE FIRST DAY OF CLASS. We will collect it to see what skills we need to focus on in the first few weeks of the school year. We will then return the practice packet and provide you with an answer sheet. If you have questions while attempting the work and the online resources do not provide enough assistance, please feel free to email questions to sbalhan@d94.org. Give us your best work...while giving yourself the opportunity to get off to a great start. WE LOOK FORWARD TO MEETING YOU IN SEPTEMBER!!!

~THE ALGEBRA I TEACHERS~

Find the answer that best answers the questions. Circle your answer.

1. Evaluate the expression. $8 + x - 5 - y$ when $x = -2$ and $y = 6$
 - a. -5
 - b. 7
 - c. 11
 - d. 17

2. Evaluate the expression. z^2 when $z = -4$
 - a. -16
 - b. -8
 - c. 8
 - d. 16

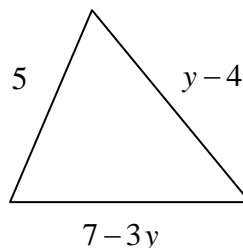
3. Evaluate the expression. $3 + 5^2 - 2 \cdot 7$
 - a. -78
 - b. 14
 - c. 42
 - d. 434

4. Evaluate the expression. $12 - \frac{52 + 8}{6 + 3^2}$
 - a. -4
 - b. -3.2
 - c. 7
 - d. 8

5. Write the following as an expression. "The sum of a number x and 8".
 - a. $x - 8$
 - b. $x + 8$
 - c. $x \cdot 8$
 - d. $\frac{x}{8}$

6. Write the following as an expression. "4 less than twice a number x "
 - a. $2x - 4$
 - b. $4 - 2x$
 - c. $x^2 - 4$
 - d. $4 - x^2$

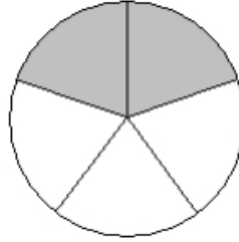
7. Write the following as an inequality. "The difference of a number z and 18 is more than 44".
- $z - 18 \leq 44$
 - $z - 18 < 44$
 - $z - 18 \geq 44$
 - $z - 18 > 44$
8. Write the following as an inequality. "The product of a number y and 23 is less than or equal to 16".
- $y + 23 < 16$
 - $y + 23 \leq 16$
 - $y \cdot 23 < 16$
 - $y \cdot 23 \leq 16$
9. Simplify the expression. $5x + 7 + 3x - 2$
- $8x + 9$
 - $2x + 9$
 - $8x + 5$
 - $2x + 5$
10. Simplify the expression. $4(n - 3) - 2(-3 + n)$
- $2n - 6$
 - $2n + 6$
 - $4n - 18$
 - $6n - 2$
11. What is the value of $5(-x)$ when $x = -10$?
- 50
 - 15
 - 50
 - 15
12. Simplify the expression. $-2(x + 4) + 6(5 - 3x)$
- $16x + 22$
 - $-20x + 22$
 - $-16x + 38$
 - $20x + 38$
13. Find the perimeter of the triangle to the right.
- $12 - 4y$
 - $16 - 2y$
 - $12 + 2y$
 - $8 - 2y$



14. Find the solution of the equation. $25 = x - 11$
- a. -36
 - b. -14
 - c. 14
 - d. 36
15. Find the solution of the equation. $22 + x = 65$
- a. -87
 - b. -43
 - c. 43
 - d. 87
16. Find the solution of the equation. $\frac{m}{3.6} = -1.2$
- a. -4.32
 - b. -3
 - c. 2.4
 - d. 4.8
17. Find the solution of the equation. $\frac{3}{5}n = 15$
- a. 5
 - b. 9
 - c. $15\frac{3}{5}$
 - d. 25
18. Find the solution of the equation. $-3x + 7 = 19$
- a. -9
 - b. -4
 - c. 4
 - d. 15
19. Find the solution of the equation. $\frac{2}{3}c + 6 = -12$
- a. -27
 - b. -18
 - c. -9
 - d. 3

20. Identify the first step in solving the equation. $\frac{12}{x} + 5 = -1$
- a. Add 1 to each side.
 - b. Add 5 to each side.
 - c. Divide each side by 12.
 - d. Subtract 5 from each side.

21. What percentage of the circle is shaded?



- a. 20%
 - b. 40%
 - c. 66.6%
 - d. 150%
22. Which fraction is equivalent to $\frac{3}{8}$?

- a. $\frac{8}{3}$
- b. $2\frac{2}{3}$
- c. $\frac{6}{16}$
- d. $\frac{6}{11}$

23. Which of the following is an equivalent form of the fraction $\frac{3}{4}$?

- a. $\frac{4}{3}$
- b. 75%
- c. .25
- d. 175%

24. Marta is making two recipes. One calls for $\frac{1}{8}$ cup of nuts. The other calls for $\frac{3}{4}$ cups of nuts. How many cups of nuts will be needed in all? Simplify your answer.

- a. $\frac{4}{12}$
- b. $\frac{1}{3}$
- c. $\frac{7}{8}$
- d. $\frac{3}{32}$

25. Find the value of x in the proportion. $\frac{2x}{5} = \frac{8}{20}$

- a. 1
- b. 2
- c. 3
- d. 4

26. Find the value of d in the proportion. $\frac{d}{18} = \frac{5}{2}$

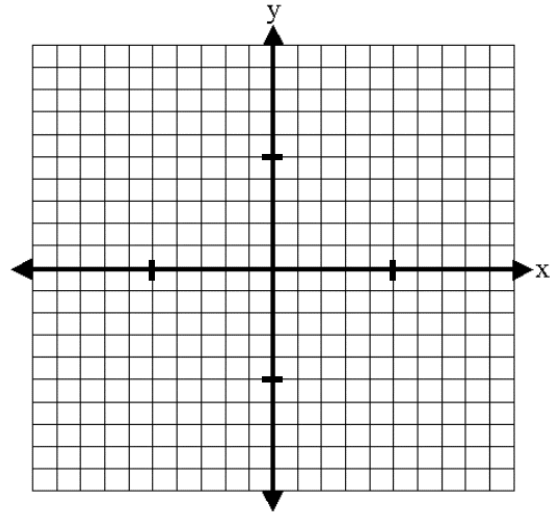
- a. 10
- b. 40
- c. 45
- d. 90

27. What percent of 300 is 60?

- a. 2%
- b. 5%
- c. 20%
- d. 500%

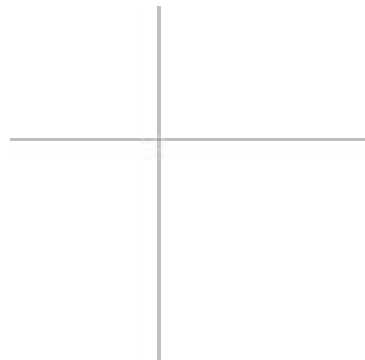
28. A point is located 5 units to the right of the origin and 4 units down. What are the coordinates of the point?

- a. $(-4, 5)$
- b. $(4, 5)$
- c. $(5, -4)$
- d. $(5, 4)$



29. In which quadrant are x and y both negative?

- a. I
- b. II
- c. III
- d. IV



30. Which ordered pair is a solution of $y = -5x + 18$?

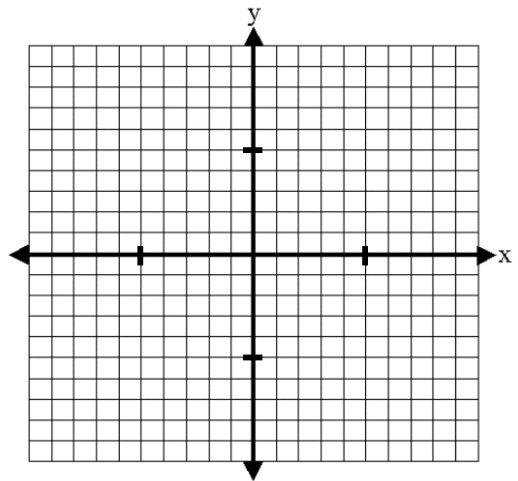
- a. $(-2, 8)$
- b. $(8, -2)$
- c. $(2, 8)$
- d. $(8, 2)$

31. What is the slope of the line with equation $y = -\frac{3}{4}x - 5$?

- a. -5
- b. -3
- c. $-\frac{3}{4}$
- d. $\frac{3}{4}$

32. What is the slope of the line that passes through the points $(5, -3)$ and $(-7, 5)$?

- a. $-\frac{3}{2}$
- b. -1
- c. $-\frac{2}{3}$
- d. $-\frac{1}{6}$



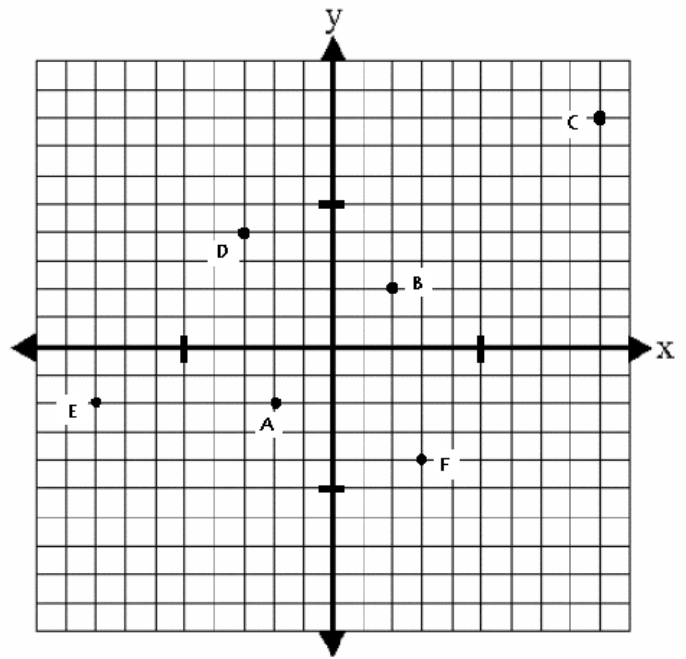
33. The table shows the monthly rent of an apartment for a given size (in square feet). Find the **rate of change (slope)** in monthly rent with respect to the size of the apartment.

Size (square feet) (x)	600	800	1000
Rent (dollars) (y)	750	1000	1250

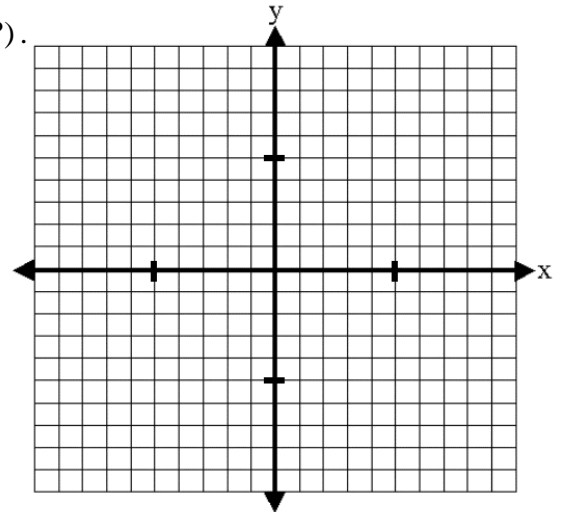
- a. \$.80 per square foot
- b. \$1.25 per square foot
- c. \$1.50 per square foot
- d. \$12.50 per square foot

In problems 34 - 36, use the graph to the right.

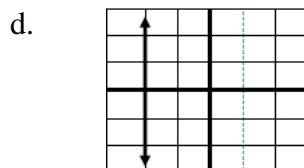
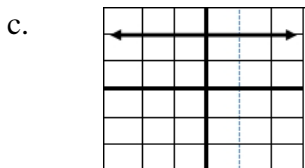
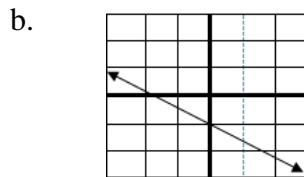
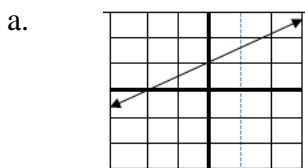
34. What are the coordinates of point D?
- (-4, 0)
 - (-3, 4)
 - (4, 3)
 - (4, 0)
35. Which point is located 2 units in the positive x-direction and 2 units in the positive y-direction?
- B
 - C
 - F
 - G
36. Which point is 8 units away from the y-axis?
- A
 - C
 - E
 - F



37. Plot $(-3, 3)$. Using the slope $-\frac{3}{2}$, find the y-coordinate of $(1, ?)$.
- 6
 - 3
 - 1
 - 0

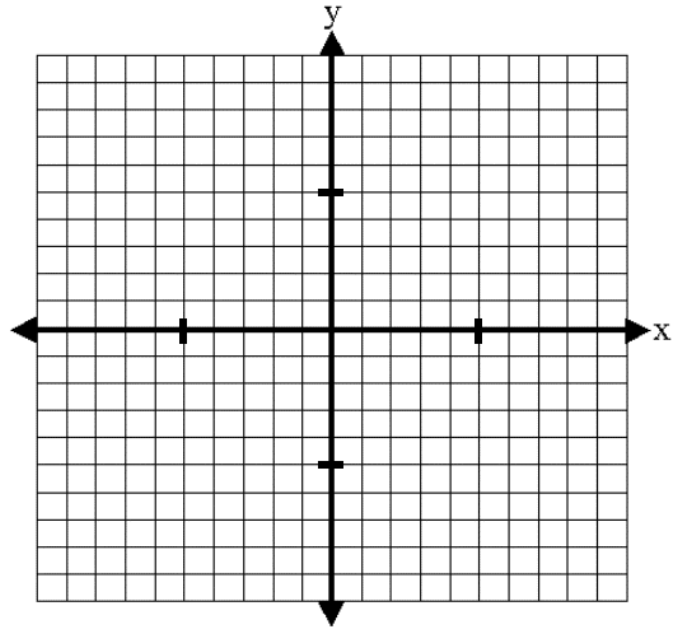


38. Which of the following has a slope of zero?



39. What is the equation of the vertical line that passes through the point $(5, -2)$?

- a. $x = 5$
- b. $x = -2$
- c. $y = 5$
- d. $y = -2$



40. Which of the following statements is true of the given lines?

$$y = -2x - 4 \qquad y = -2x - 10$$

- a. They are parallel.
- b. They are perpendicular.
- c. They are intersecting but not perpendicular.
- d. They are the same line.