

AcadeMir Charter Schools

2024 SUMMER INCOMING ALGEBRA 2 MATH PACKET

Please turn into your Math teacher by Friday, August 23rd.

ACADEMIR CHARTER SCHOOLS



Dear incoming Algebra 2 student,

We hope you had a wonderful year in school!

This summer math packet has been created to help you review and prepare for Algebra 2. It covers many of the math topics that you learned in class this year, which we will be building on next year.

- Please show all of your work for every problem in the packet. You can show your work on a separate sheet of paper if space is needed.
- The paper should be neatly organized - with every problem numbered.
- Highlight, draw a box, or draw a circle around your final answers.
- You **MAY** use a calculator.

Note: If you submit your summer packet without the work, you **WILL NOT receive full credit.*

The completed packet is due on the first week of school by:

Friday, August 23rd.

It will count as your first math grade of the new school year.

We hope you have a nice summer and look forward to seeing you in August!

Algebra 2 Summer Assignment

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the equation.

1) $\frac{5}{6}x = \frac{1}{4}$ 1) _____

- A) $\left\{-\frac{3}{10}\right\}$ B) $\left\{-\frac{3}{2}\right\}$ C) $\left\{\frac{3}{10}\right\}$ D) $\left\{\frac{10}{3}\right\}$

2) $7x - (2x - 1) = 2$ 2) _____

- A) $\left\{\frac{1}{5}\right\}$ B) $\left\{-\frac{1}{5}\right\}$ C) $\left\{\frac{1}{9}\right\}$ D) $\left\{-\frac{1}{9}\right\}$

Solve the formula for the indicated variable.

3) $PV = nRT$ for T 3) _____

- A) $T = \frac{nPV}{R}$ B) $T = \frac{PV}{nR}$ C) $T = \frac{PVR}{n}$ D) $T = \frac{PV}{R}$

Solve the equation by factoring.

4) $7x^2 - 9x = 0$ 4) _____

- A) $\left\{-\frac{9}{7}, 0\right\}$ B) $\left\{\frac{9}{7}, -\frac{9}{7}\right\}$ C) $\left\{\frac{9}{7}, 0\right\}$ D) $\{0\}$

5) $x^2 - 25 = 0$ 5) _____

- A) $\{5\}$ B) $\{25\}$ C) $\{-5\}$ D) $\{5, -5\}$

6) $5x^2 + 8x - 4 = 0$ 6) _____

- A) $\left\{-\frac{2}{5}, -2\right\}$ B) $\left\{\frac{2}{5}, -2\right\}$ C) $\left\{\frac{2}{5}, 2\right\}$ D) $\left\{-\frac{2}{5}, 2\right\}$

7) $x^2 - 11x + 30 = 0$ 7) _____

- A) $\{5, 6\}$ B) $\{5, -6\}$ C) $\{-5, -6\}$ D) $\{-5, 6\}$

Find the real solutions, if any, of the equation. Use the quadratic formula.

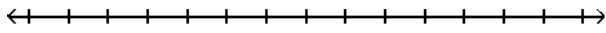
8) $x^2 + 8x - 7 = 0$ 8) _____

- A) $\{-4 - 2\sqrt{23}, -4 + 2\sqrt{23}\}$ B) $\{-4 - \sqrt{23}, -4 + \sqrt{23}\}$
C) $\{-1 - \sqrt{23}, -1 + \sqrt{23}\}$ D) $\{4 + \sqrt{23}\}$

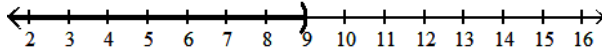
Solve the inequality. Express your answer using interval notation.

9) $x + 3 < 6$

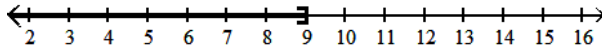
9) _____



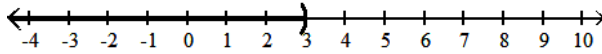
A) $(-\infty, 9)$



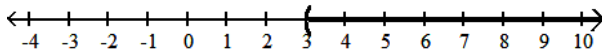
B) $(-\infty, 9]$



C) $(-\infty, 3)$

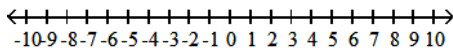


D) $(3, \infty)$



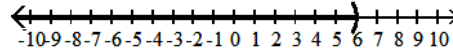
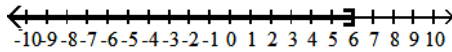
10) $2x + 4 < 16$

10) _____



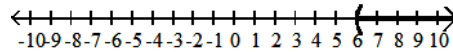
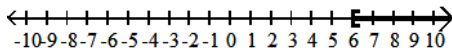
A) $(-\infty, 6]$

B) $(-\infty, 6)$



C) $[6, \infty)$

D) $(6, \infty)$



Write the following as an algebraic expression. Then simplify.

11) The sum of three even consecutive integers if the first integer is y .

11) _____

A) $3y + 6$

B) $3y$

C) $3y + 3$

D) 6

12) The total value of money (in cents) of $(7x - 2)$ nickels, $6x$ dimes, and x quarters.

12) _____

A) $(95x - 10)$ cents

B) $(120x - 10)$ cents

C) $(120x - 2)$ cents

D) $(120x + 10)$ cents

Solve.

13) Four times the sum of some number plus 3 is equal to 8 times the number minus 12.

13) _____

A) -24

B) 24

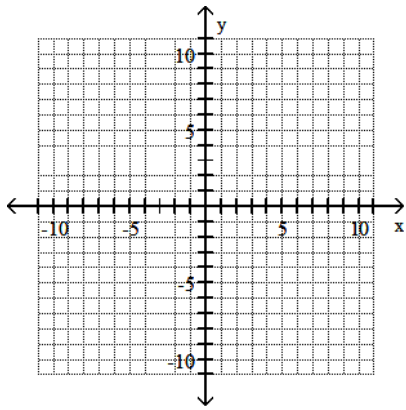
C) 6

D) -6

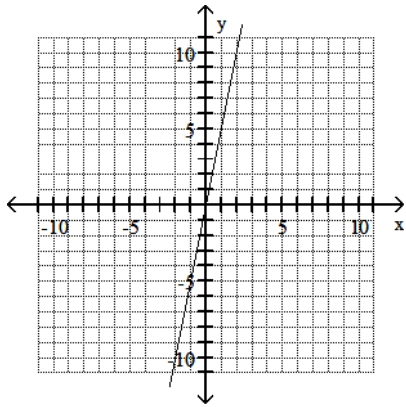
Graph the linear equation.

14) $y = 5x$

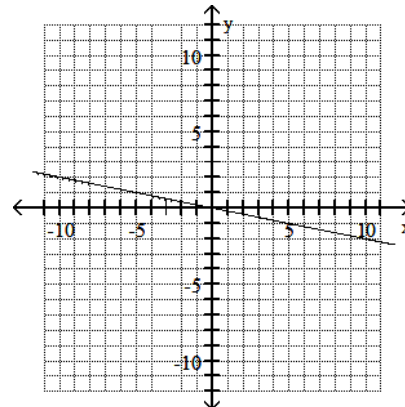
14) _____



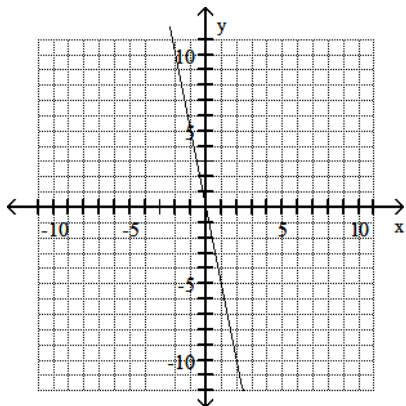
A)



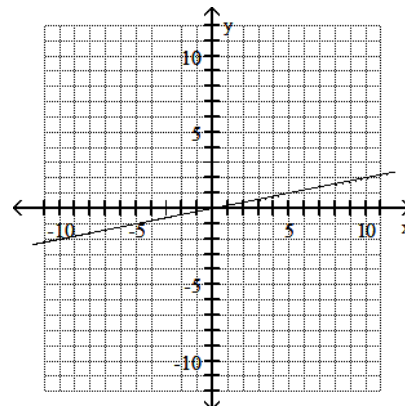
B)



C)

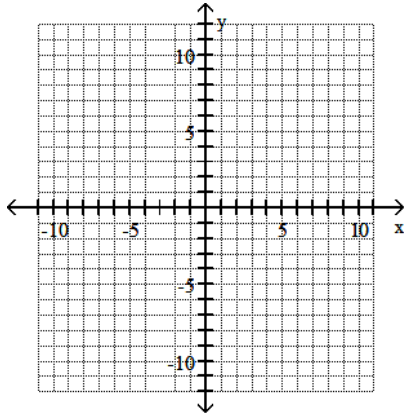


D)

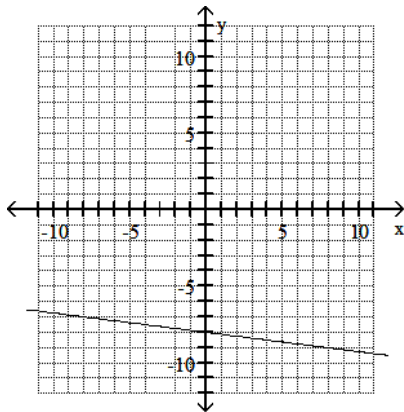


15) $y = \frac{1}{8}x + 8$

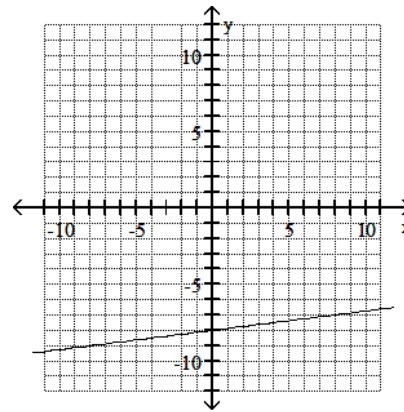
15) _____



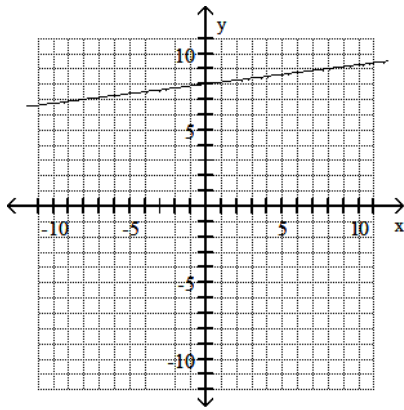
A)



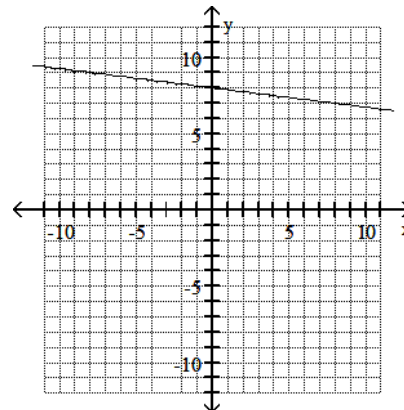
B)



C)



D)



Find the slope of the line containing the pair of points.

16) (8, 2) and (7, 4)

16) _____

A) $-\frac{1}{2}$

B) 2

C) $\frac{2}{5}$

D) - 2

17) (-2, -7) and (2, -8)

17) _____

A) $\frac{1}{2}$

B) 2

C) $-\frac{1}{4}$

D) - 4

Find the slope of the line.

18) $-2y + 5x = 33$

A) $-\frac{2}{5}$

B) $-\frac{33}{2}$

C) $\frac{5}{2}$

D) $-\frac{5}{2}$

18) _____

19) $5x + 3y = 14$

A) $-\frac{5}{3}$

B) $\frac{3}{5}$

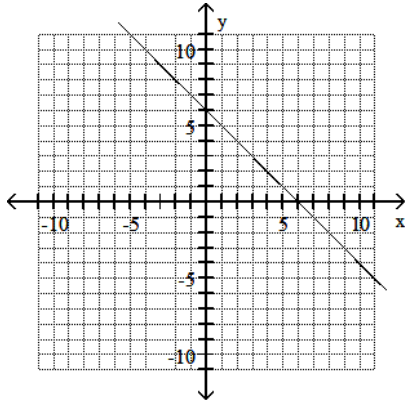
C) $\frac{5}{3}$

D) $\frac{14}{3}$

19) _____

Find the slope of the line if it exists.

20)



A) 6

B) -6

C) 1

D) -1

20) _____

Determine whether the lines are parallel, perpendicular, or neither.

21) $y = 4x + 6$

$y = -4x - 7$

A) Parallel

B) Perpendicular

C) Neither

21) _____

22) $4x - 36y = 3$

$-9x - y = 9$

A) Parallel

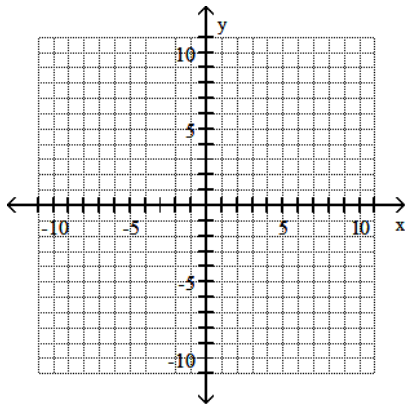
B) Perpendicular

C) Neither

22) _____

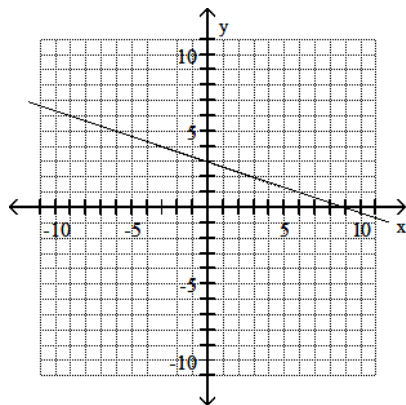
Graph the line passing through the given point with the given slope.

23) Through $(0, 3)$ with slope $\frac{1}{3}$

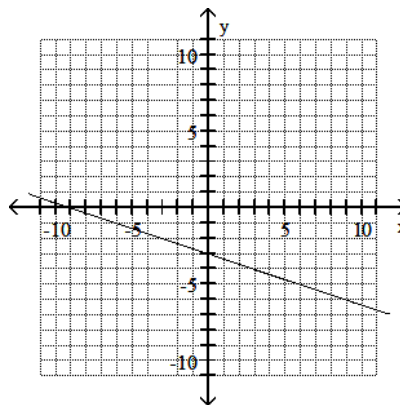


23) _____

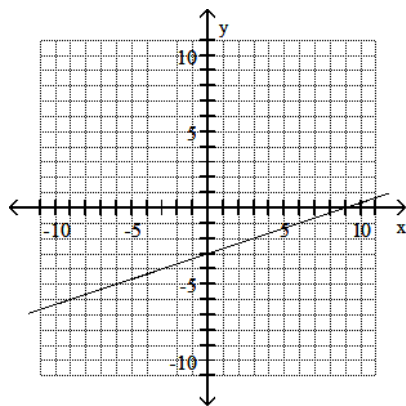
A)



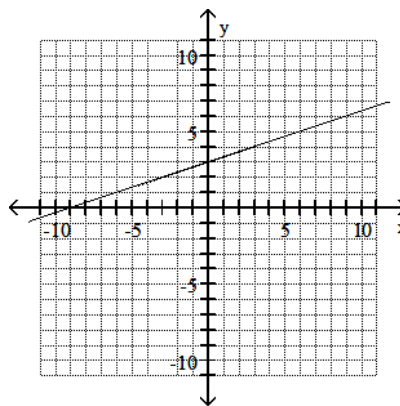
B)



C)



D)



Use the slope-intercept form of the linear equation to write the equation of the line with the given slope and y-intercept.

24) Slope $-\frac{9}{8}$; y-intercept $(0, \frac{43}{8})$

24) _____

A) $y = -\frac{9}{8}x - \frac{43}{8}$

B) $y = \frac{9}{8}x + \frac{43}{8}$

C) $y = \frac{9}{8}x - \frac{43}{8}$

D) $y = -\frac{9}{8}x + \frac{43}{8}$

Write an equation of the line with the given slope and containing the given point. Write the equation in the slope-intercept form $y = mx + b$.

25) Slope -2; through $(-4, 6)$

25) _____

A) $y = -2x + 2$

B) $y = -2x - 2$

C) $y - 6 = mx + 4$

D) $y - 6 = x + 4$

Find an equation of the line. Write the equation in standard form.

26) Slope 0; through $(-3, -2)$

26) _____

A) $y = -3$

B) $x = -3$

C) $y = -2$

D) $x = -2$

Determine whether the relation is also a function.

27) $\{(-3, -3), (3, -3), (4, -2), (9, 7), (11, -7)\}$

27) _____

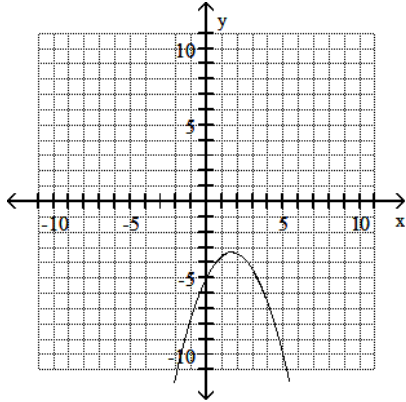
A) Yes

B) No

Use the vertical line test to determine whether the graph is the graph of a function.

28)

28) _____



A) Function

B) Not a function

Solve the system of equations by the substitution method.

29)

29) _____

$$\begin{cases} x + y = 6 \\ y = 2x \end{cases}$$

A) (-2, -4)

B) (-2, 4)

C) (2, 4)

D) (2, -4)

Find the function value.

30) Find $f(1)$ when $f(x) = 3x^2 - 2x - 6$.

30) _____

A) -1

B) -5

C) 7

D) 3