

Summer Packet Geometry CP 2023

Name: _____

Please SHOW ALL THE WORK in the space provided. Be sure to circle your answers. This packet is to help you review topics that are considered to be prerequisite knowledge upon entering Geometry CP. To ensure that the good skills you developed this year in your Algebra 1 course do not disappear this summer, working on this packet is a requirement to be completed over the summer. It is **NOT** recommended to complete immediately following school dismissal in June or the night before the packet is due. Student learning is most effective if the packet is completed over the months of July and August. Geometry CP students will be tested on the materials covered in this packet within the first few weeks of school once the teacher has discussed the packet in the classroom.

Solve each equation for the indicated variable. Distribute and combine like terms when necessary. Remember PEMDAS rules.

$$1) \ 4x - 9x = -15$$

$$2) \ x - 8 - 3 = -12$$

$$3) \ -4(-7a - 3) = 96$$

$$4) \ 147 = -5(1 + 5m) + 6m$$

$$5) \ -7 + r - 7 + 5r = 8 - 5r$$

$$6) \ -6(n - 6) - 3(n - 4) = 21$$

$$7) \ -8p + 8 = -2p + 2$$

$$8) \ 38 + 8w = -8(6 - 6w) + 3w$$

$$9) \ -4x - 35 = -8x - 7(7x + 5)$$

$$10) \ 3(-5x - 5) + x = 3 - 2(x + 3)$$

Solve the following proportions using Cross Products Property (cross multiply).

$$11) \frac{5}{3x} = \frac{1}{15}$$

$$12) \frac{x-2}{4} = \frac{x+10}{10}$$

$$13) \frac{2}{x-3} = \frac{6}{x-2}$$

$$14) \frac{10}{6x+7} = \frac{6}{2x+9}$$

Evaluate each expression for $x = 10$ and $y = -7$:

$$15) 2x - 5y$$

$$16) (x + y)^2$$

$$17) 5xy^2$$

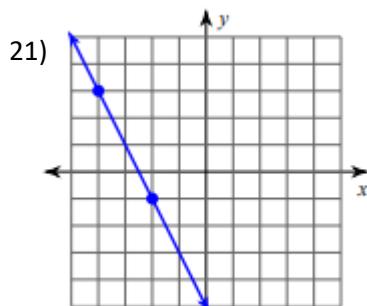
Evaluate for $x = 4$ and $y = -1$

$$18) (2x)^3 - 2x^3$$

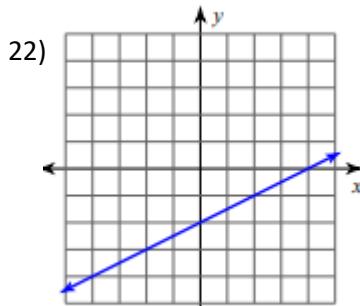
$$19) \frac{-3x}{2y}$$

$$20) (x - y) + 6x$$

Find the slope of the line.



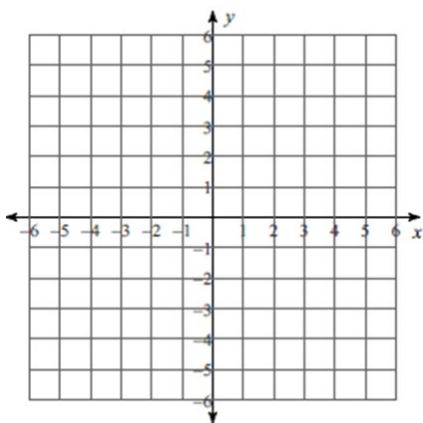
Graph the following linear functions.



Slope-Intercept Form $y = mx + b$

$$23) y = \frac{1}{4}x + 3$$

24) Sketch the graph of $y = \frac{1}{3}x - 4$

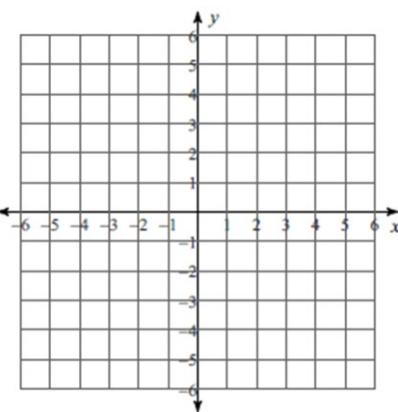


$$m = \underline{\hspace{2cm}}$$

$$b = \underline{\hspace{2cm}}$$

25) Using Slope Intercept Form sketch the graph of

$$3x - y = 5$$

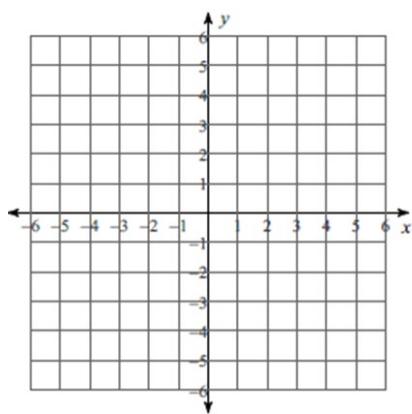


$$m = \underline{\hspace{2cm}}$$

$$b = \underline{\hspace{2cm}}$$

26) Using Slope Intercept Form sketch the graph of

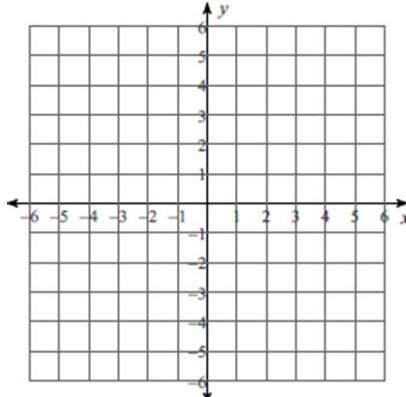
$$6x + 5y = 5$$



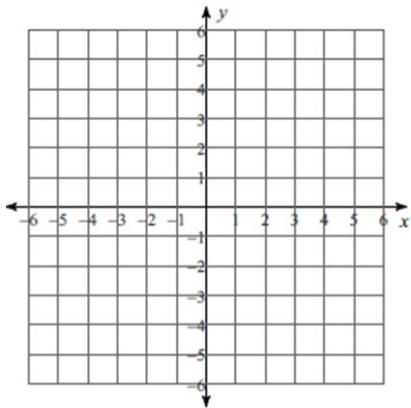
$$m = \underline{\hspace{2cm}}$$

$$b = \underline{\hspace{2cm}}$$

27) Sketch the graph of the line $x = 2$ and describe its slope.



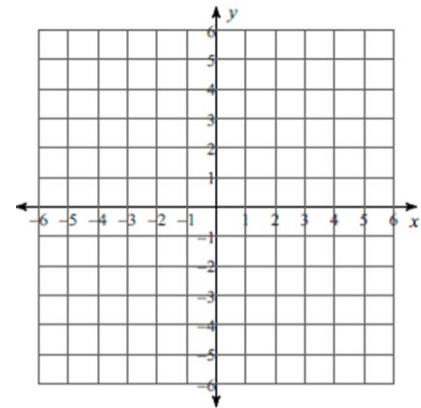
28) Sketch the graph of the line $y = -3$ and describe its slope.



29) Using Slope Intercept Form sketch the graph of both lines and describe their relationship.

$$y = -\frac{1}{2}x$$

$$-2y = x + 10$$



Exponents Review Rules:

Product of Powers

$$x^m \cdot x^n = x^{m+n}$$

$$x^3 \cdot x^2 = x^5$$

$$x^7 = x^2$$

Power of a Quotient

$$\left(\frac{x}{y}\right)^m = \frac{x^m}{y^m}$$

$$\left(\frac{2}{3}\right)^2 = \frac{2^2}{3^2} = \frac{4}{9}$$

$$x^{-7} = \frac{1}{x^7}$$

Use exponent properties to simplify each of the following. Be sure that answers do not contain negative exponents!

$$30) 4x^4y^5 \cdot -5x^2y$$

$$31) (6x^3y^{-2})^2$$

$$32) \frac{12p^7q^6}{18p^4q^{12}}$$

$$33) x^3x^5x^{-11}$$

$$34) \frac{9m^4n^{-3}}{3m^{-2}n^5}$$

$$35) (6x^3y^2)^0$$

Evaluate the expressions. Simplify if needed. There should be no exponents when done.

$$36) 5^3$$

$$37) 3^4 \cdot 3^{-8}$$

$$38) \left(\frac{2^4}{2^3}\right)^2$$

Perform the indicated operation. Hint: combine like terms, distribute, or FOIL.

$$39) (x^4 + 6x^2 + 7) + (2x^4 - 3x^2 + 1)$$

$$40) (7n^3 + 2n^2 - n - 4) - (4n^3 - 3n^2 + 8)$$

$$41) (3x - 1)(5x + 1)$$

$$42) (4x - 7)(5x - 2)$$

Factor each of the following.

$$43) 3x + 12$$

$$44) x^2 + 8x + 15$$

$$45) x^2 - 13x + 36$$

$$46) x^2 + 4x - 32$$

$$47) 3y^2 + 2y - 4$$

$$48) 5x^2 - 19x - 4$$