Dear Rising Form II Algebra I, Part II Students,

Attached to this letter is a summer work packet for you. The packet is divided into three sections – June, July and August to encourage you to do work throughout the summer rather than saving it for the last weeks of August. Practicing concepts at regular intervals will help you retain the information better and reduce some of the dreaded summer slide.

We expect students starting Algebra I, Part II to have a strong grasp of questions like #1-16 in the packet. We will review those ideas briefly at the start of the year, and then you will take an assessment on them. An answer key is provided with the packet so you can check your work and know which concepts you understand and which ones you still need to practice.

We will spend more time deliberately reviewing problems dealing with slope and graphing linear functions at the start of the year. We want you to continue to practice them over the summer so you are ready to deepen your understanding of them when school resumes.

<u>This packet is highly recommended</u>, and we will be collecting it at the start of the school year to see who completed it.

We hope you enjoyed your journey through the first part of Algebra this year!

Best,

Mr. Bumbulsky, Mr. Meyer and Mr. Romero

Name _____

Rising Form II Algebra I, Part 2 Summer Work
June Problems

Expressions
Simplify the following expressions.

1. $7p - 3 + 8p$

2. $-18w + 12n + 6w - 20n$

3. $15(2x + 4)$

4. $9(3x - 1) + 4(8 - 5x)$

Linear Equations
Solve for the variable in the following equations.

5. $6m - 7 = 39$

6. $-4 = 5 - \frac{3}{8}c$

7. $13(v + 3) = -91$

8. $3y + 12 - y = -32$

9. $-42 = 2(1 + 3x) + 4(x + 4)$

10. $4n - 7(n - 2) - 11 = 3(1 - n)$

11. $\frac{4}{5} = \frac{k+7}{7}$

12. $\frac{4}{3} = \frac{x-10}{x-7}$

Solving Inequalities

Solve and graph each inequality.

13. $\frac{n}{6} + 10 \geq 9$

14. $-62 > 10 + 9a$

15. $2(1 + 8k) + 8 > -86$

16. $-4(8m + 1) - 4 \geq -8m + 40$

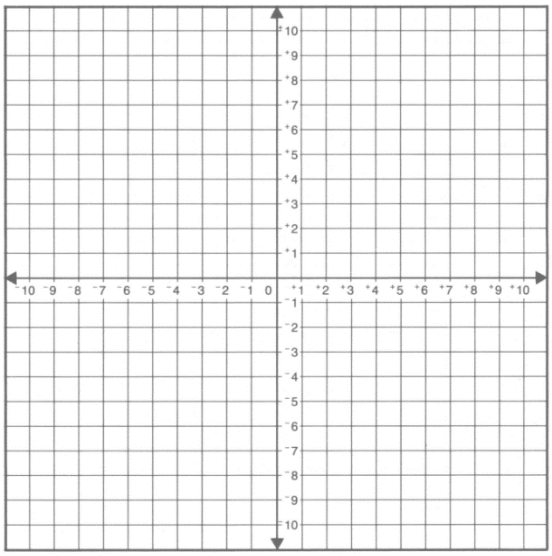
Linear Functions

17. Find the slope of the line going through: (-14, 3) and (-2, -12)

18. Graph the equation: $y = 5x - 1$

Name the slope: _____

Name the y-intercept: _____

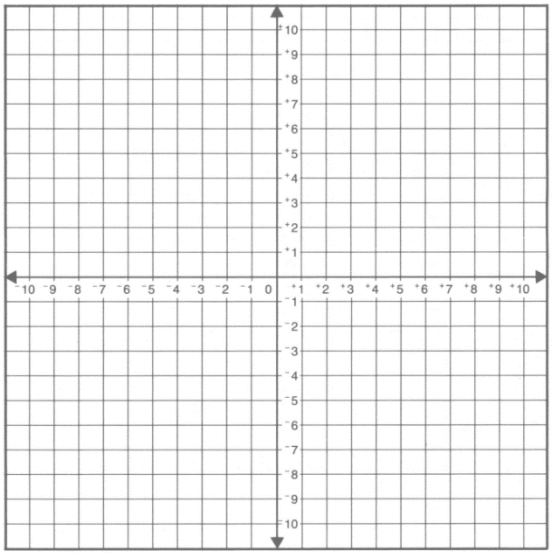


19. Graph the equation: $y - 8 = \frac{2}{3}(x - 5)$

Name the slope: _____

Name the point given in the equation:

_____



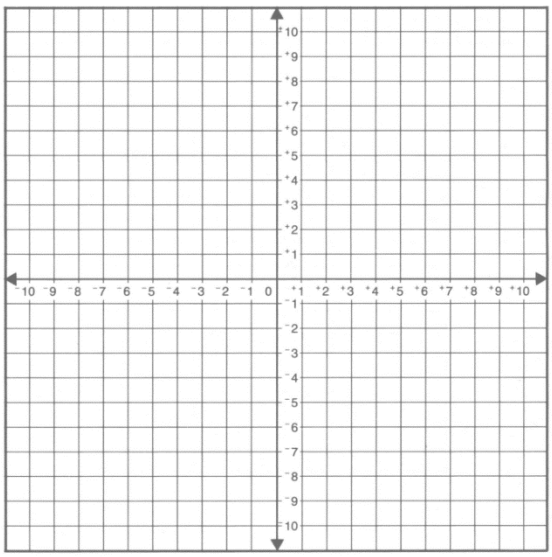
20. $2x + y = -8$

x-intercept _____

y-intercept _____

slope _____

slope-intercept form _____



Name _____

Rising Form II Algebra I, Part 2 Summer Work
July Problems

Expressions
Simplify the following expressions.

1. $-9k + 4 + 2k$

2. $1 - 5m - 9 - 8m$

3. $-2(p - 3)$

4. $-2(4k - 1) + 5(-10 - 4k)$

Linear Equations
Solve for the variable in the following equations.

5. $0 = -1 + \frac{p}{14}$

6. $-19 = -7 - \frac{1}{3}m$

7. $90 = -10(c - 6)$

8. $12p - 7 - 8p = -19$

9. $-64 = -6(r - 7) - 7(r + 4)$

10. $-8(8 + 7n) = 4(6n + 4)$

11. $\frac{10}{8} = \frac{5}{x-7}$

12. $\frac{4}{n+8} = \frac{5}{n+6}$

Solving Inequalities

Solve and graph each inequality.

13. $8 + \frac{x}{3} \leq 5$

14. $-6y + 1 > -35$

15. $93 \leq 3(5 + 4h) - 6$

16. $-12 + 7w > -3(2w - 8) + w$

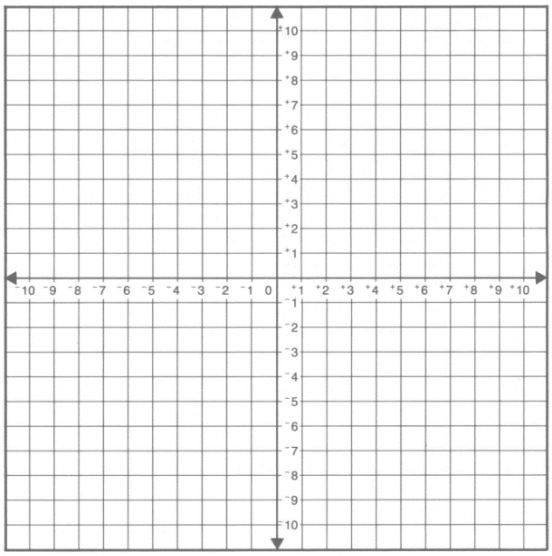
Linear Functions

17. Find the slope of the line going through: (16, 18) and (20, 6)

18. Graph the equation $y = \frac{1}{3}x + 4$

Name the slope: _____

Name the y-intercept: _____

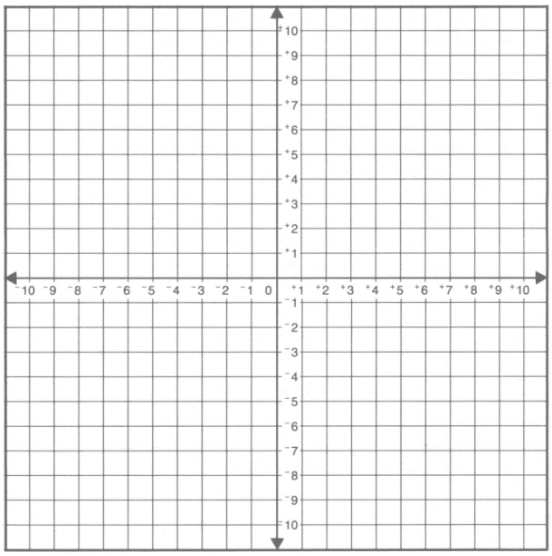


19. Graph the equation: $y + 3 = 4(x - 1)$

Name the slope: _____

Name the point given in the equation:

_____



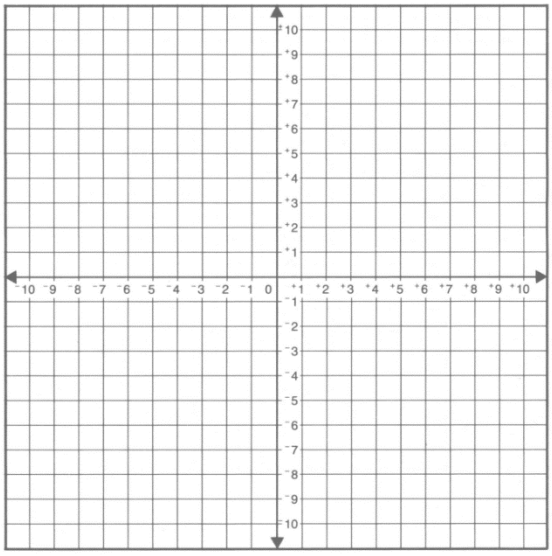
20. $3x + 4y = 24$

x-intercept _____

y-intercept _____

slope _____

slope-intercept form _____



Name _____

Rising Form II Algebra I, Part 2 Summer Work
August Problems

Expressions
Simplify the following expressions.

1. $m + 9 + 3m - 14$

2. $18 - 14y + 12 + 2y$

3. $-5(x + 3)$

4. $7(10v + 5) - 4(-v - 6)$

Linear Equations
Solve for the variable in the following equations.

5. $-1 = -7 + 2x$

6. $5 + \frac{1}{2}w = 15$

7. $16 = -2(n - 7)$

8. $3x + 9 - 12x = -81$

9. $4(5m - 7) + 5(3m + 3) = -48$

10. $-8k - 2(k + 4) = -2(4 + 4k)$

11. $\frac{9}{2} = \frac{k+6}{4}$

12. $\frac{n-4}{7} = \frac{n+9}{8}$

Solving Inequalities

Solve and graph each inequality.

13. $5 + 9x \leq 50$

14. $6x + 3 < 99$

15. $-5v + 2(2 + 7v) \leq 49$

16. $7(p - 6) < -2 - p$

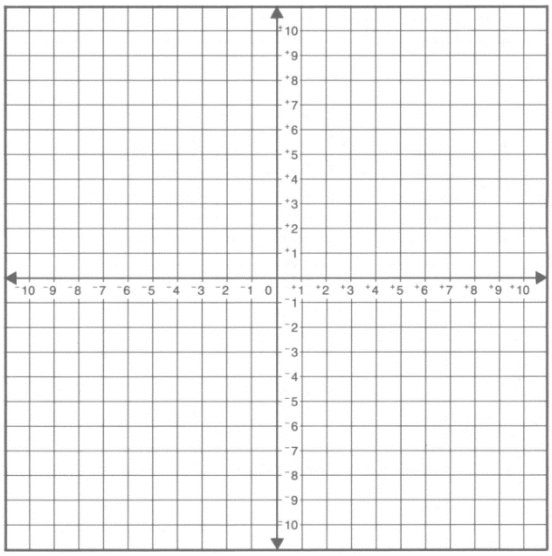
Linear Functions

17. Find the slope of the line going through: (-9, 5) and (11, 21)

18. Graph the equation $y = -\frac{3}{5}x - 2$

Name the slope: _____

Name the y-intercept: _____

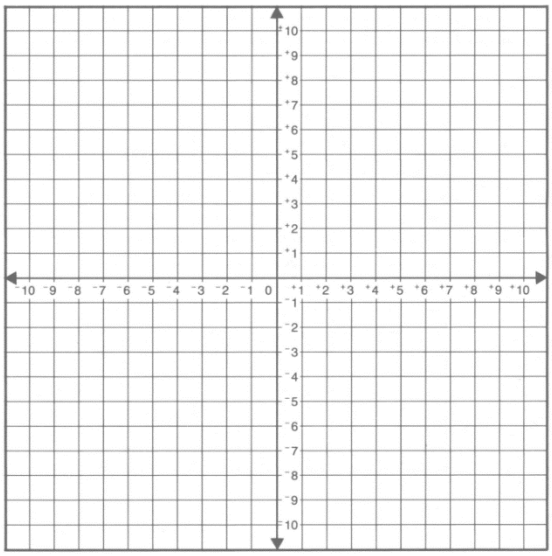


19. Graph the equation: $y + 5 = \frac{2}{3}(x - 3)$

Name the slope: _____

Name the point given in the equation:

_____



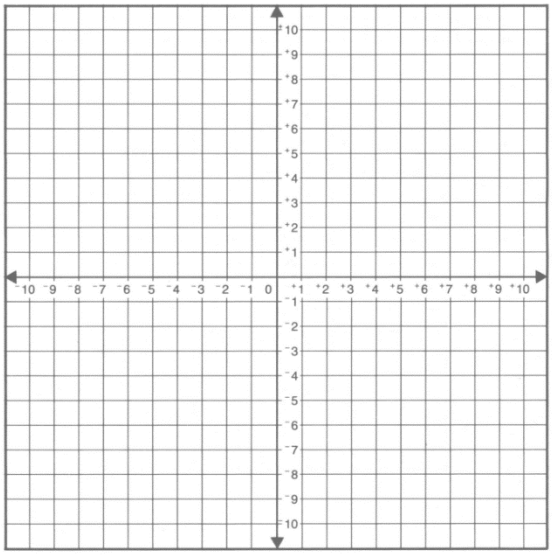
20. $5x + 2y = 20$

x-intercept _____

y-intercept _____

slope _____

slope-intercept form _____



Name _____

Form II Algebra I, Part 2 Summer Work
June Problems

Expressions
Simplify the following expressions.

1. $7p - 3 + 8p$

$15p - 3$

2. $-18w + 12n + 6w - 20n$

$-12w - 8n$

3. $15(2x + 4)$

$30x + 60$

4. $9(3x - 1) + 4(8 - 5x)$

$27x - 9 + 32 - 20x$

$7x + 23$

Linear Equations
Solve for the variable in the following equations.

5. $6m - 7 = 39$

$+7 \quad +7$

$\frac{6m}{6} = \frac{46}{6}$

$m = \frac{23}{3}$

6. $-4 = 5 - \frac{3}{8}c$

$-5 \quad -5$

$-\frac{8}{3} \times -9 = \frac{-3}{8}c \times -\frac{8}{3}$

$24 = c$

7. $13(v + 3) = -91$

$13v + 39 = -91$

$-39 \quad -39$

$\frac{13v}{13} = \frac{-130}{13}$

$v = -10$

8. $3y + 12 - y = -32$

$2y + 12 = -32$

$-12 \quad -12$

$\frac{2y}{2} = \frac{-44}{2}$

$y = -22$

9. $-42 = 2(1 + 3x) + 4(x + 4)$

$-42 = 2 + 6x + 4x + 16$

$-42 = 10x + 18$

$-18 \quad -18$

$\frac{-60}{10} = \frac{10x}{10}$

$x = -6$

10. $4n - 7(n - 2) - 11 = 3(1 - n)$

$4n - 7n + 14 - 11 = 3 - 3n$

$-3n + 3 = 3 - 3n$

$+3n \quad +3n$

$3 = 3$

all real numbers

11. $\frac{4}{5} = \frac{k+7}{7}$

$28 = 5k + 35$
$-35 \quad -35$

$\frac{-7}{5} = \frac{5k}{5}$

$-\frac{7}{5} = k$

12. $\frac{4}{3} = \frac{x-10}{x-7}$

$4x - 28 = 3x - 30$
$-3x + 28 \quad -3x + 28$

$x = -2$

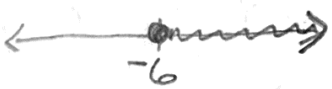
Solving Inequalities

Solve and graph each inequality.

13. $\frac{n}{6} + 10 \geq 9$
$-10 \quad -10$

$6 \times \frac{n}{6} \geq -1 \times 6$

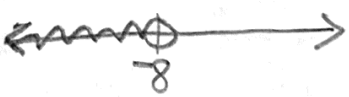
$n \geq -6$



14. $-62 > 10 + 9a$
$-10 \quad -10$

$\frac{-72}{9} > \frac{9a}{9}$

$-8 > a$

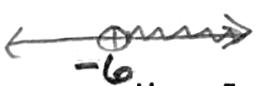


15. $2(1 + 8k) + 8 > -86$
$-8 \quad -8$

$2 + 16k > -94$
$-2 \quad -2$

$\frac{16k}{16} > \frac{-96}{16}$

$k > -6$



16. $-4(8m + 1) - 4 \geq -8m + 40$
$-32m - 4 - 4 \geq -8m + 40$
$-32m - 8 \geq -8m + 40$
$+32m \quad -40 \quad +32m \quad -40$

$\frac{-48}{24} \geq \frac{24m}{24}$

$-2 \geq m$

Linear Functions

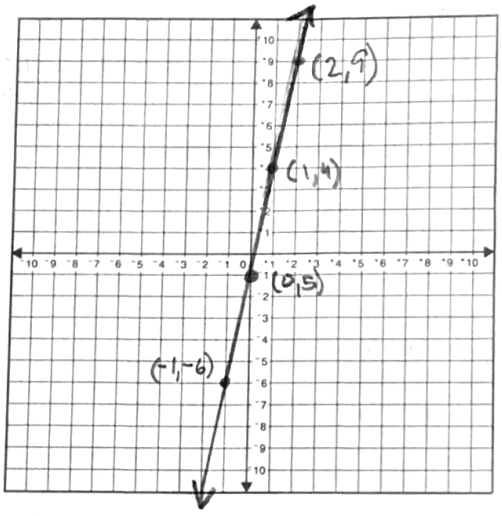
17. Find the slope of the line going through: (-14, 3) and (-2, -12)

$\frac{3 - (-12)}{-14 - (-2)} = \frac{15}{-12} = -\frac{5}{4}$

18. Graph the equation: $y = 5x - 1$

Name the slope: 5

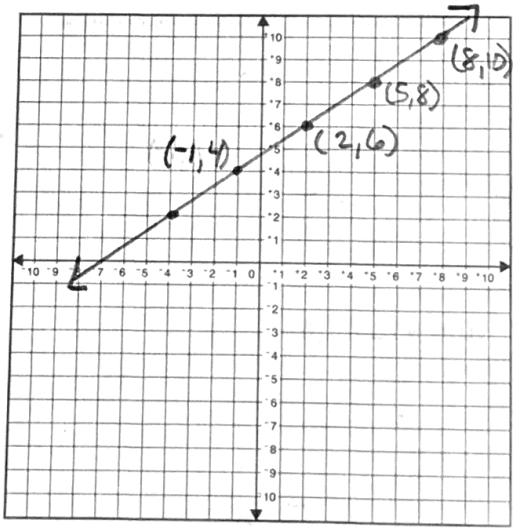
Name the y-intercept: -1



19. Graph the equation: $y - 8 = \frac{2}{3}(x - 5)$

Name the slope: $\frac{2}{3}$

Name the point given in the equation:
(5,8)



20. $2x + y = -8$

$\frac{2x}{2} = \frac{-8}{2}$

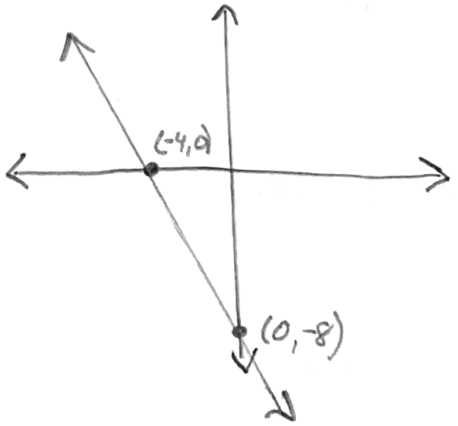
$x = -4$

x-intercept -4

y-intercept -8

slope -2

slope-intercept form $y = -2x - 8$



Name _____

Form II Algebra I, Part 2 Summer Work
July Problems

Expressions
Simplify the following expressions.

1. $-9k + 4 + 2k$

$-7k + 4$

2. $1 - 5m - 9 - 8m$

$-13m - 8$

3. $-2(p - 3)$

$-2p + 6$

4. $-2(4k - 1) + 5(-10 - 4k)$

$-8k + 2 - 50 - 20k$

$-28k - 48$

Linear Equations
Solve for the variable in the following equations.

5. $0 = -1 + \frac{p}{14}$

$+1 \quad +1$

$14 \times 1 = \frac{p}{14} \times 14$

$14 = p$

6. $-19 = -7 - \frac{1}{3}m$

$+7 \quad +7$

$-3 \times -12 = -\frac{1}{3}m \times -3$

$36 = m$

7. $90 = -10(c - 6)$

$90 = -10c + 60$

$-60 \quad -60$

$\frac{30}{-10} = \frac{-10c}{-10}$

$-3 = c$

8. $12p - 7 - 8p = -19$

$4p - 7 = -19$

$+7 \quad +7$

$\frac{4p}{4} = \frac{-12}{4}$

$p = -3$

9. $-64 = -6(r - 7) - 7(r + 4)$

$-64 = -6r + 42 - 7r - 28$

$-64 = -13r + 14$

$-14 \quad -14$

$\frac{-78}{-13} = \frac{-13r}{-13}$

$6 = r$

10. $-8(8 + 7n) = 4(6n + 4)$

$-64 - 56n = 24n + 16$

$-16 + 56n \quad +56n - 16$

$\frac{-80}{80} = \frac{80n}{80}$

$-1 = n$

11. $\frac{10}{8} = \frac{5}{x-7}$

$10x - 70 = 40$

$+70 \quad +70$

$\frac{10x}{10} = \frac{110}{10}$

$x = 11$

12. $\frac{4}{n+8} = \frac{5}{n+6}$

$5n + 40 = 4n + 24$

$-4n - 40 \quad -4n - 40$

$n = -16$

Solving Inequalities

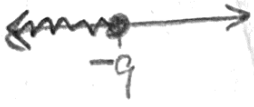
Solve and graph each inequality.

13. $8 + \frac{x}{3} \leq 5$

$-8 \quad -8$

$3 \times \frac{x}{3} \leq -3 \times 3$

$x \leq -9$



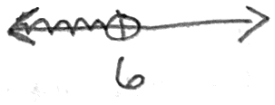
14. $-6y + 1 > -35$

$-1 \quad -1$

$\frac{-6y}{-6} > \frac{-36}{-6}$

$y < 6$

* switch sign when dividing both sides by a negative



15. $93 \leq 3(5 + 4h) - 6$

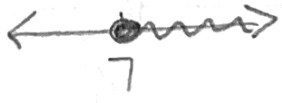
$+6 \quad +6$

$99 \leq 15 + 12h$

$-15 \quad -15$

$\frac{84}{12} \leq \frac{12h}{12}$

$7 \leq h$



16. $-12 + 7w > -3(2w - 8) + w$

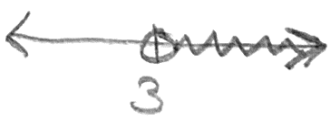
$-12 + 7w > -6w + 24 + w$

$-12 + 7w > -5w + 24$

$+12 + 5w \quad +5w + 12$

$\frac{12w}{12} > \frac{36}{12}$

$w > 3$



Linear Functions

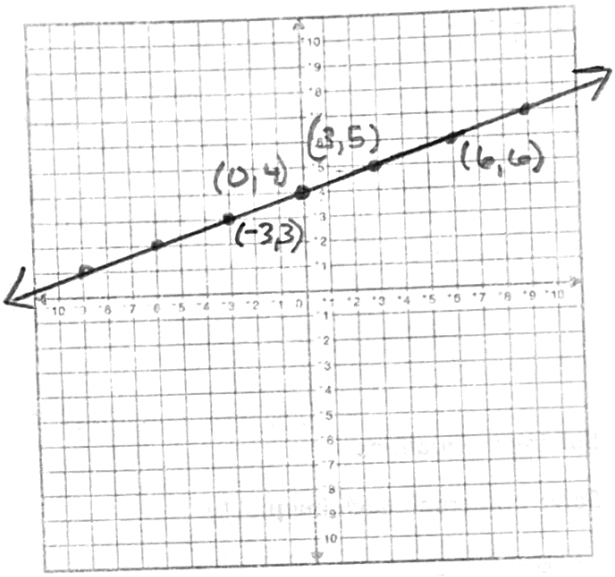
17. Find the slope of the line going through: (16, 18) and (20, 6)

$\frac{18-6}{16-20} = \frac{12}{-4} = -3$

18. Graph the equation $y = \frac{1}{3}x + 4$

Name the slope: $\frac{1}{3}$

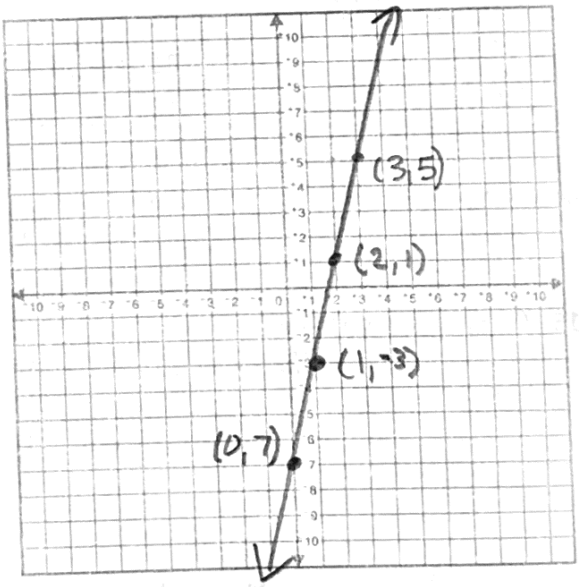
Name the y-intercept: 4



19. Graph the equation: $y + 3 = 4(x - 1)$

Name the slope: 4

Name the point given in the equation: (1, -3)



20. $3x + 4y = 24$

x-intercept 8

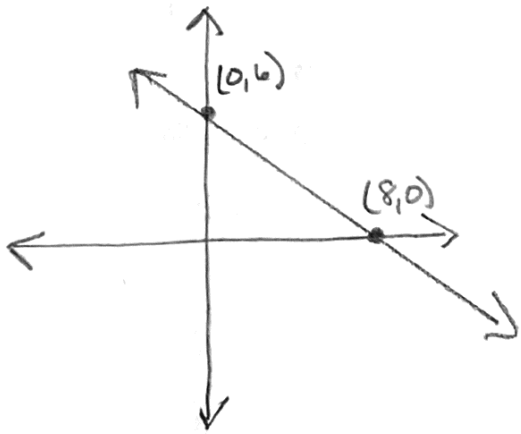
y-intercept 6

slope $-3/4$

slope-intercept form $y = \frac{-3}{4}x + 6$

$\frac{3x}{3} = \frac{24}{3}$ $x = 8$

$\frac{4y}{4} = \frac{24}{4}$ $y = 6$



Name _____

Form II Algebra I, Part 2 Summer Work
August Problems

Expressions
Simplify the following expressions.

1. $m + 9 + 3m - 14$

$4m - 5$

2. $18 - 14y + 12 + 2y$

$-12y + 30$

3. $-5(x + 3)$

$-5x - 15$

4. $7(10v + 5) - 4(-v - 6)$

$70v + 35 + 4v + 24$

$74v + 59$

Linear Equations
Solve for the variable in the following equations.

5. $-1 = -7 + 2x$

$+7 \quad +7$

$\frac{6}{2} = \frac{2x}{2}$

$3 = x$

6. $5 + \frac{1}{2}w = 15$

$-5 \quad -5$

$2 \times \frac{1}{2}w = 10 \times 2$

$w = 20$

7. $16 = -2(n - 7)$

$16 = -2n + 14$

$-14 \quad -14$

$\frac{2}{-2} = \frac{-2n}{-2}$

$-1 = n$

8. $3x + 9 - 12x = -81$

$-9x + 9 = -81$

$-9 \quad -9$

$\frac{-9x}{-9} = \frac{-90}{-9}$

$x = 10$

9. $4(5m - 7) + 5(3m + 3) = -48$

$20m - 28 + 15m + 15 = -48$

$35m - 13 = -48$

$+13 \quad +13$

$\frac{35m}{35} = \frac{-35}{35}$

$m = -1$

10. $-8k - 2(k + 4) = -2(4 + 4k)$

$-8k - 2k - 8 = -8 - 8k$

$-10k - 8 = -8 - 8k$

$+8k \quad +8 \quad | \quad +8 \quad +8k$

$\frac{-2k}{-2} = \frac{0}{-2}$

$k = 0$

11. $\frac{9}{2} = \frac{k+6}{4}$

$36 = 2k + 12$

$-12 \quad -12$

$\frac{24}{2} = \frac{2k}{2}$

$12 = k$

12. $\frac{n-4}{7} = \frac{n+9}{8}$

$7n + 63 = 8n - 32$

$-7n + 32 \quad -7n + 32$

$95 = n$

Solving Inequalities

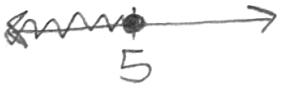
Solve and graph each inequality.

13. $5 + 9x \leq 50$

$-5 \quad -5$

$\frac{9x}{9} \leq \frac{45}{9}$

$x \leq 5$

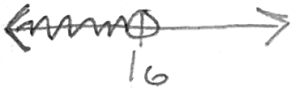


14. $6x + 3 < 99$

$-3 \quad -3$

$\frac{6x}{6} < \frac{96}{6}$

$x < 16$



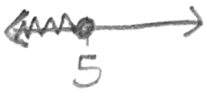
15. $-5v + 2(2 + 7v) \leq 49$

$-5v + 4 + 14v \leq 49$

$-4 \quad -4$

$\frac{9v}{9} \leq \frac{45}{9}$

$v \leq 5$



16. $7(p - 6) < -2 - p$

$7p - 42 < -2 - p$

$+p + 42 \quad +42 + p$

$\frac{8p}{8} < \frac{40}{8}$

$p < 5$

Linear Functions

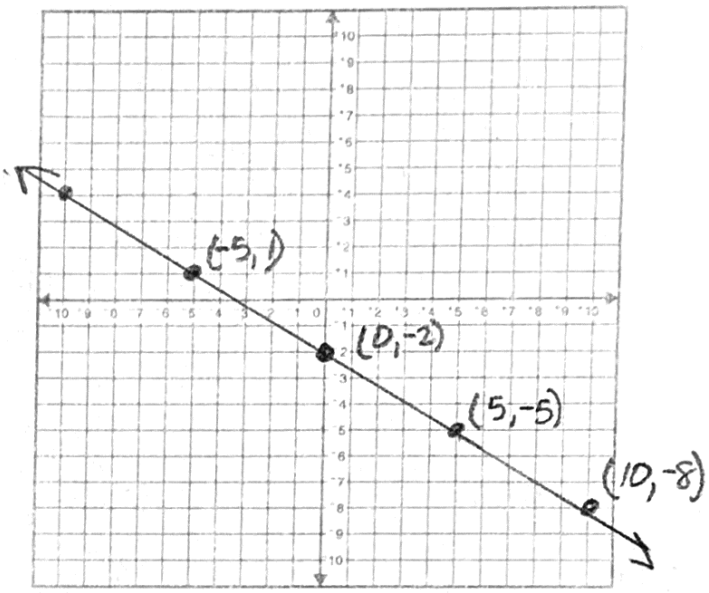
17. Find the slope of the line going through: (-9, 5) and (11, 21)

$\frac{5 - 21}{-9 - 11} = \frac{-16}{-20} = \frac{4}{5}$

18. Graph the equation $y = -\frac{3}{5}x - 2$

Name the slope: $-3/5$

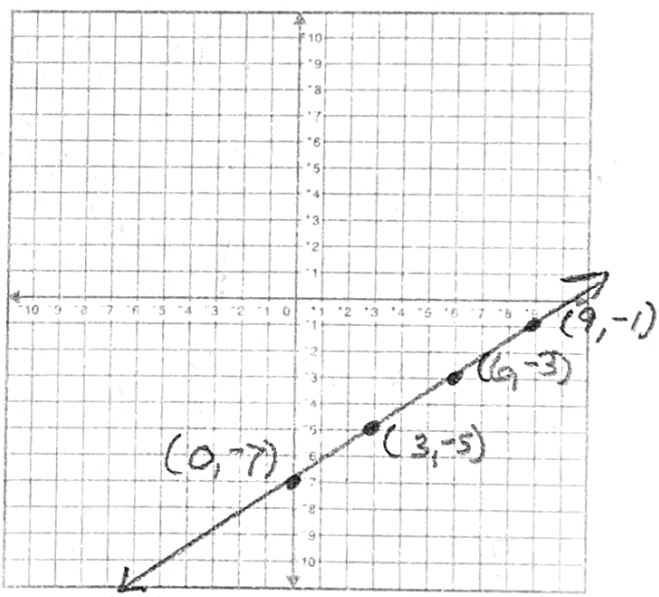
Name the y-intercept: -2



19. Graph the equation: $y + 5 = \frac{2}{3}(x - 3)$

Name the slope: $2/3$

Name the point given in the equation: $(3,-5)$



20. $5x + 2y = 20$

$\frac{5x}{5} = \frac{20}{5}$

$x = 4$

$\frac{2y}{2} = \frac{20}{2}$

$y = 10$

x-intercept 4

y-intercept 10

slope $-5/2$

slope-intercept form $y = -\frac{5}{2}x + 10$