Name _____ Date _____ Class _____

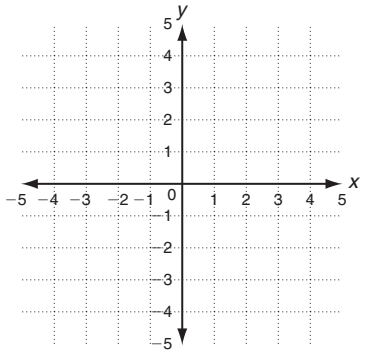
LESSON 2-5

Practice B

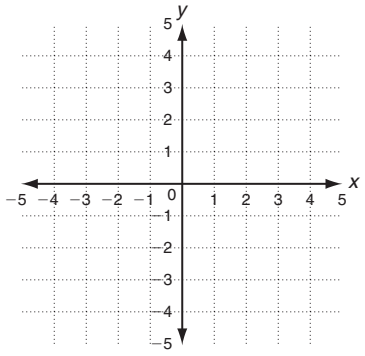
Linear Inequalities in Two Variables

Graph each inequality.

1. $y < x + 2$

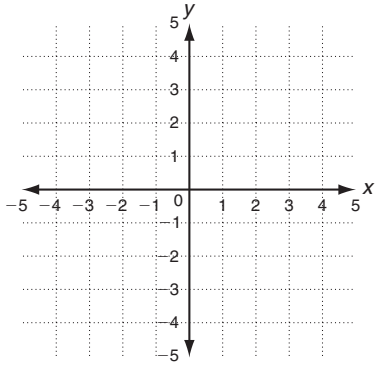


2. $y \geq 3x - 5$

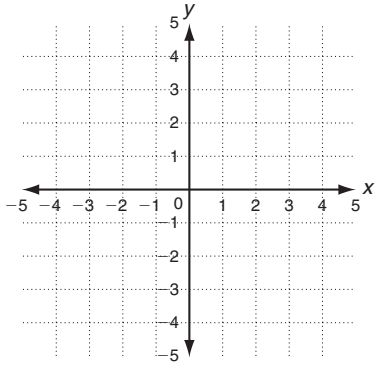


Solve each inequality for *y*. Graph the solution.

3. $-2(3x + 2y - 3) \geq 12$



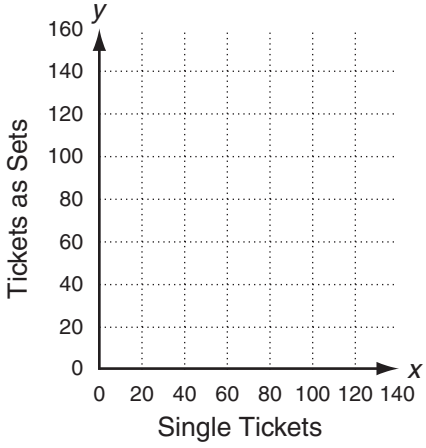
4. $\frac{-x}{5} + \frac{2y}{3} > 0$



Solve.

5. Marcus volunteers to work at a carnival booth selling raffle tickets. The tickets cost \$2 each or 3 for \$5. His goal is to have at least \$250 in sales during his shift.

a. Let *x* be the number of tickets sold for \$2 each. Let *y* be the number of tickets sold in sets of 3 for \$5. Write and graph an inequality for the total number of tickets Marcus must sell to meet his goal.



_____

b. If Marcus sells 75 tickets for \$2 each, what is the least number of tickets he must sell in sets of 3 to meet his goal?

_____

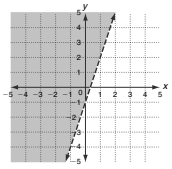
LESSON 2-5

Practice A

Linear Inequalities in Two Variables

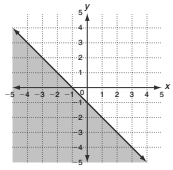
Choose a point in the shaded solution region of each graph and test it in the inequality. Does it satisfy the inequality? Tell whether the solution region is *correct* or *incorrect*.

1. $y > 3x - 1$



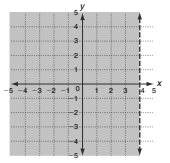
Correct

2. $y \geq -x - 1$



Incorrect

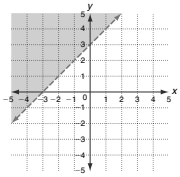
3. $x < 4$



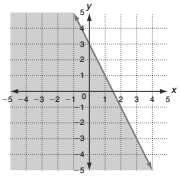
Correct

Graph each inequality.

4. $y > x + 3$

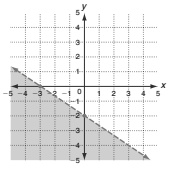


5. $y \leq -2x + 3$

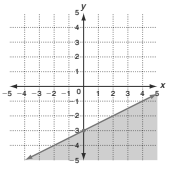


Solve each inequality for *y*. Graph the solution.

6. $2x + 3y < -6$



7. $5x - 10y \geq 30$



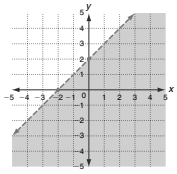
LESSON 2-5

Practice B

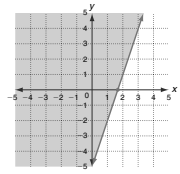
Linear Inequalities in Two Variables

Graph each inequality.

1. $y < x + 2$

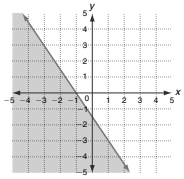


2. $y \geq 3x - 5$

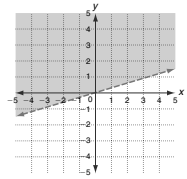


Solve each inequality for *y*. Graph the solution.

3. $-2(3x + 2y - 3) \geq 12$



4. $\frac{-x}{5} + \frac{2y}{3} > 0$



Solve.

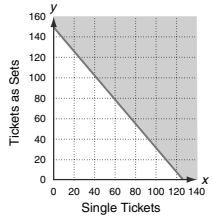
5. Marcus volunteers to work at a carnival booth selling raffle tickets. The tickets cost $2 each or 3 for $5. His goal is to have at least $250 in sales during his shift.

a. Let x be the number of tickets sold for $2 each. Let y be the number of tickets sold in sets of 3 for $5. Write and graph an inequality for the total number of tickets Marcus must sell to meet his goal.

$2x + \frac{5y}{3} \geq 250$

b. If Marcus sells 75 tickets for $2 each, what is the least number of tickets he must sell in sets of 3 to meet his goal?

60 tickets



LESSON 2-5

Practice C

Linear Inequalities in Two Variables

Solve.

1. Ticket prices for Wonderful Wave Water Park are $25.00 for each child under 12 and $35.00 for each adult. When Cassie ends her shift, the total value of her credit card receipts is $2400. She also has cash receipts. Let x be the number of child tickets sold and y be the number of adult tickets sold.

a. Write an inequality that shows the minimum number of tickets Cassie could have sold during her shift. $25x + 35y > 2400$

b. Graph the inequality on a graphing calculator. If Cassie sold 25 adult tickets, what is the minimum number of child tickets she could have sold? 61 tickets

2. The cost to rent a car from Jumpin' Jalopies is $15.00 a day from Monday through Thursday. Friday through Sunday the rental fee is $10.75 a day. Let x be the number of days Monday through Thursday that a car is rented. Let y be the number of weekend days that a car is rented.

a. Write an inequality that shows the maximum you would pay to rent the car for 10 consecutive days. $15x + 10.75y \leq 137.25$

b. Graph the inequality on a graphing calculator. Describe the appropriate domain of x and y. $4 \leq x \leq 7; 3 \leq y \leq 6$

c. Explain why the domain is limited.

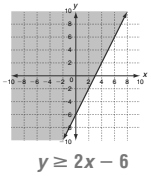
Possible answer: Depending on when you start the 10-day period, the number of weekdays and weekend days will vary.

d. How should you configure the 10 consecutive days in order to spend the minimum to rent a car? Explain your answer.

Possible answer: Pick up the car on a Friday and return it the following Sunday. This gives you 6 weekend days at the lower rate and 4 weekdays at the higher rate.

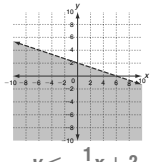
Write an inequality for each graph.

3.



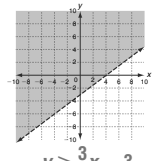
$y \geq 2x - 6$

4.



$y < -\frac{1}{3}x + 2$

5.



$y > \frac{3}{4}x - 3$

LESSON 2-5

Review for Mastery

Linear Inequalities in Two Variables

Graphing a linear inequality is similar to graphing a linear function.

Graph $y \leq \frac{2}{3}x + 1$ using the slope-intercept form.

Step 1 Write the corresponding equation. Then identify the slope and the y-intercept.

$y = \frac{2}{3}x + 1$

$m = \frac{2}{3}$ and $b = 1$

Step 2 Draw the graph of $y = \frac{2}{3}x + 1$.

Draw a solid boundary line for $\leq$ or $\geq$.

Draw a dashed boundary line for $<$ or $>$.

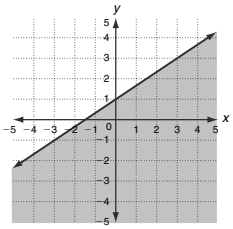
Step 3 Shade the half-plane below the line for $<$ or $\leq$. Shade the half-plane above the line for $>$ or $\geq$.

Step 4 Check using a point in the shaded region. Use $(0, 0)$.

$y \leq \frac{2}{3}x + 1$

$0 \stackrel{?}{\leq} \frac{2}{3}(0) + 1$

$0 \stackrel{?}{\leq} 1$ ✓



Graph each inequality.

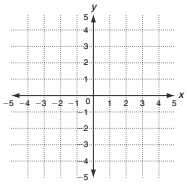
1. $y \leq x + 2$

a. $m =$ 1

b. $b =$ 2

c. boundary line is Solid

d. shade half-plane Below the line



2. $y > -2x + 1$

a. $m =$ −2

b. $b =$ 1

c. boundary line is Dashed

d. shade half-plane Above the line