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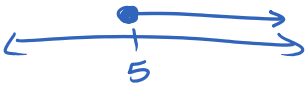
Tuesday, January 30, 2018 8:53 AM

5.2 Homework

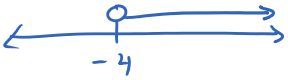
Graph each inequality.

1. $m < 1$

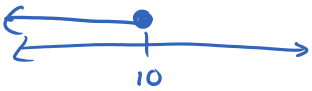
2. $n \geq 5$



3. $j > -4$



4. $k \leq 10$



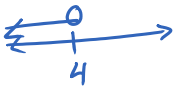
Solve and graph each inequality.

5. $3f + 9 < 21$

$-9 \quad -9$

$\frac{3f}{3} < \frac{12}{3}$

$\boxed{f < 4}$

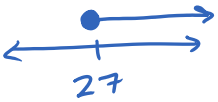


6. $4n - 3 \geq 105$

$+3 \quad +3$

$\frac{4n}{4} \geq \frac{108}{4}$

$\boxed{n \geq 27}$

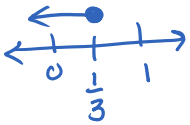


7. $33y - 3 \leq 8$

$+3 \quad +3$

$\frac{33y}{33} \leq \frac{11}{33}$

$\boxed{y \leq \frac{1}{3}}$



8. $2 + 2p > -17$

$-2 \quad -2$

$\frac{2p}{2} > \frac{-19}{2}$

$\boxed{p > -\frac{19}{2}}$

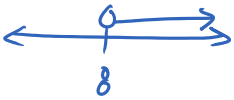
9. $12 > 60 - 6r$

$-60 \quad -60$

$\frac{-48}{-6} > \frac{-6r}{-6}$

$8 < r$

$r > 8$



10. $-5 \leq 11 + 4j$

$-11 \quad -11$

$\frac{-16}{4} \leq \frac{4j}{4}$

$-4 \leq j$

$\boxed{j \geq -4}$

Solve and graph each inequality.

11. $2(k + 4) - 3k \leq 14$

$2k+8-3k \leq 14$

$-k+\cancel{8} \leq 14$

$\quad -\cancel{8} \quad -8$

$\frac{\cancel{-k}}{-1} \leq \frac{6}{-1}$

$k \geq -6$

12. $3(4c - 5) - 2c > 0$

$12c - 15 - 2c > 0$

$10c - \cancel{15} > 0$

$\quad +\cancel{15} \quad +15$

$\frac{\cancel{10}c}{\cancel{10}} > \frac{15}{10}$

$\boxed{c > \frac{3}{2}}$

13. $15(j - 3) + 3j < 45$

$15j - 45 + 3j < 45$

$18j - \cancel{45} < 45$

$\quad +\cancel{45} \quad +45$

$\frac{\cancel{18}j}{\cancel{18}} < \frac{90}{18}$

$j < 5$

14. $22 \geq 5(2y + 3) - 3y$

$22 \geq 10y + 15 - 3y$

$22 \geq 7y + \cancel{15}$

$-15 \quad -\cancel{15}$

$\frac{7}{7} \geq \frac{\cancel{7}y}{\cancel{7}}$

$1 \geq y$

$\boxed{y \leq 1}$

15. A local pizzeria offered a special. Two pizzas cost $14.99. A group of students spent less than $75. They purchased three pitchers of soda for $12.99. How many pizzas could the group purchase?

$x = 2$ pizzas

$14.99x + \cancel{12.99} < 75$

$\quad -\cancel{12.99} \quad -12.99$

$\frac{\cancel{14.99}x}{\cancel{14.99}} < \frac{62.01}{14.99}$

$x < 4.1$

5.3 Notes: Graphing Linear Inequalities

Linear Inequalities are very similar to Linear Equations, but instead of an equal sign, they have an inequality sign.

Examples: $x+3 \leq 8$ $y \geq 4x-6$

Problem 1: Identify if the ordered pair is a solution to $y > x - 3$

a) (1, 2)

x y

$2 > 1 - 3$

$2 > -2$

yes

b) (−3, −7)

x y

$-7 > -3 - 3$

$-7 > -6$

no

c) (6, 2)

x y

$2 > 6 - 3$

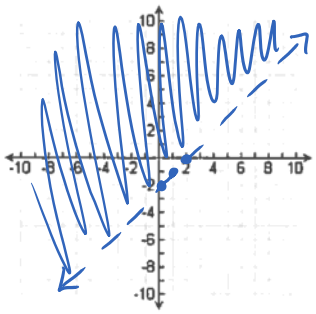
$2 > 3$

no

To graph Linear Inequalities:

1. Get the inequality in slope - intercept (the y variable needs to be alone!)
2. Use your graphing tips
   - Plot your y - intercept
   - Use your slope
3. Determine your line type:
   - $>$ and $<$ = dotted line - - -
   - $\leq$ and $\geq$ = solid line —
4. Determine your Shading:
   - If $y < mx + b$ or $y \leq mx + b$.... Shade below
   - If $y > mx + b$ or $y \geq mx + b$.... Shade above

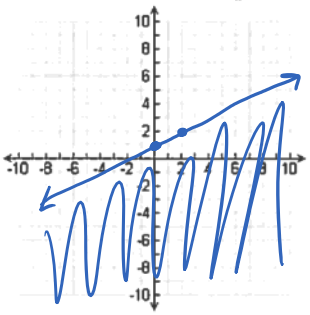
Problem 2: Graph $y > x - 2$



yint: (0,-2)

Slope: $\frac{1}{1}$

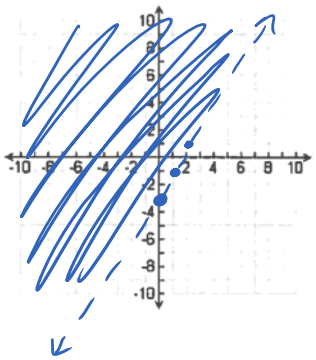
Problem 3: Graph $y \leq \frac{1}{2}x + 1$



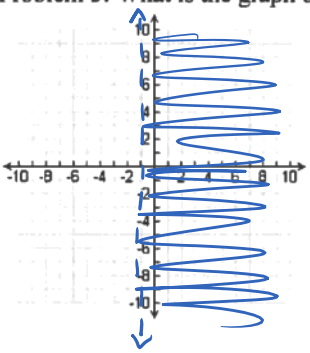
Problem 4: What is the graph of $y + \cancel{3} > 2x$

$\cancel{+3}$ -3

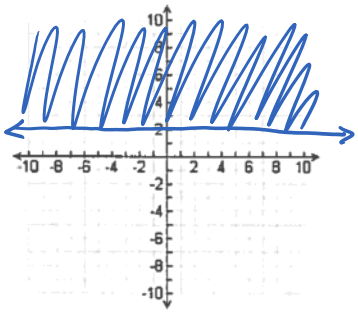
$y > 2x - 3$



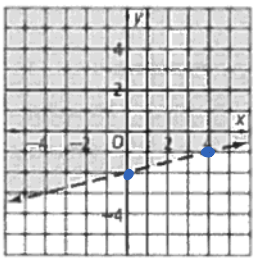
Problem 5: What is the graph of $x > -1$?



Problem 6: Graph $y \geq 2$



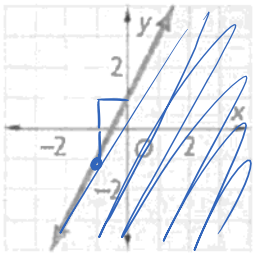
Problem 7: What is the equation of the graph shown?



$y \quad mx + b$

$\boxed{y > \frac{1}{4}x - 2}$

Problem 8: What is the equation of the graph shown?

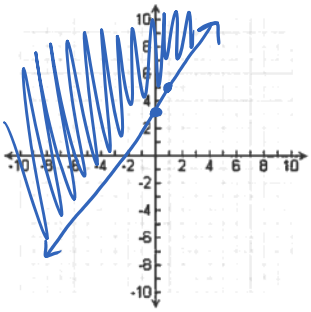


$y \leq 2x+1$

Problem 9: Graph the inequality $-2x + y \geq 3$

$+2x \quad +2x$

$y \geq 2x+3$



Problem 10: You are writing an equality from a graph. The boundary line is dashed and has a slope of – 3 and a y-intercept of 2. The area above the line is shaded. What inequality should you write?

$mx+b$

$y > -3x+2$

Problem 11: How is a linear inequality in two variables like a linear equation in two variables? How are they different'