Name: Key Period: Date:

Algebra 1

Chapter 6 Review

Show your work, please!

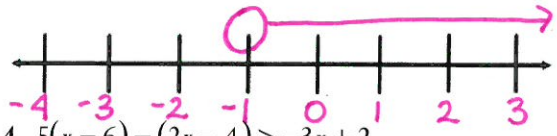
1. What was Chapter 6 all about?

Inequalities

Solve and graph each inequality, if possible.

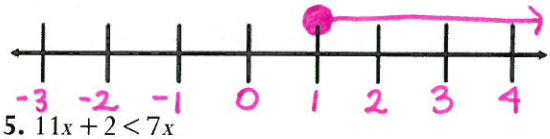
2. $-3x+2<5$

$X > -1$



3. $2+3x \geq 5$

$X \geq 1$

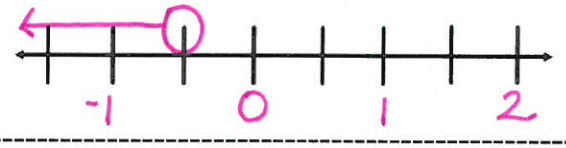


4. $5(x-6)-(2x-4)>-3x+2$

$X > \frac{28}{6} \Rightarrow X > \frac{14}{3}$ or $4\frac{2}{3}$

5. $11x+2<7x$

$X < -1/2$



The local library received $5,000 in funding from the state of Ohio every month to pay their operating expenses. Last month, Mrs. Prenger worked for 105 hours at $18 per hours and Mrs. Hinker worked for 47 hours at $12 per hour. The library gave out Smarties costing $0.10 each to each of the 486 students who visited the library. To offset those costs, it collected $234.58 in late fees and fines.

6. With the money left over in its budget, the library wants to buy new books costing $9.85 each. Set up and solve an inequality to determine how many books the library could afford to buy last month.

$9.85X + 2502.6 - 234.58 \leq 5000$

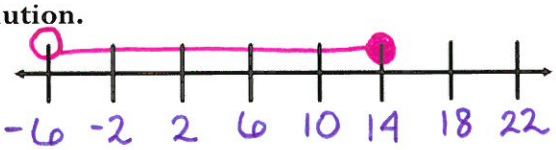
$9.85x \leq 2731.98$

$X \leq 277.36$

$X \leq 277$ books

Solve the compound inequality. Graph your solution.

7. $-12 \le 4-(x+2) < 8$



$-6 < X \le 14$

Solve the equation or inequality, if possible.

8. $4+|x+3|=2$

$|x+3| = -2$

NO solution

9. $-3|x+1| < -15$

$X > 4$ or $X < -6$

$|x+1| > 5$

$x+1 > 5 \quad x+1 < -5$

$x > 4 \quad x < -6$

10. $|-2x|-5 \ge -1$

$|-2x| \ge 4$ $\quad -2x \ge 4 \quad -2x \le -4$

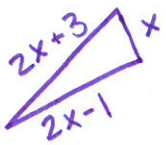
$x \le -2 \quad x \ge 2$

$X \le -2$ or $X \ge 2$

11. $4|11-x| < 30$

$X > 3.5$ and $X < 18.5$

12. The longest side of a triangle is 3 more than twice the length of the shortest side, and the medium side is one less than twice the length of the shortest side. If the perimeter of the triangle must remain less than 22 cm, what range of lengths could the shortest side be?



$2x+3+x+2x-1 < 22$

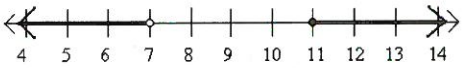
$5x+2 < 22$

$5x < 20$

$x < 4$ cm

Write an inequality to represent each graph.

13.



$X < 7$ or $X \ge 11$

14.

$0 \le X < 4$

15. A piece of pencil lead is supposed to be 0.7 mm wide. If BIC pencils will tolerate an error of at most 0.02 mm, what possible widths could a usable piece of pencil lead have?

$|x-0.7| \leq 0.02$

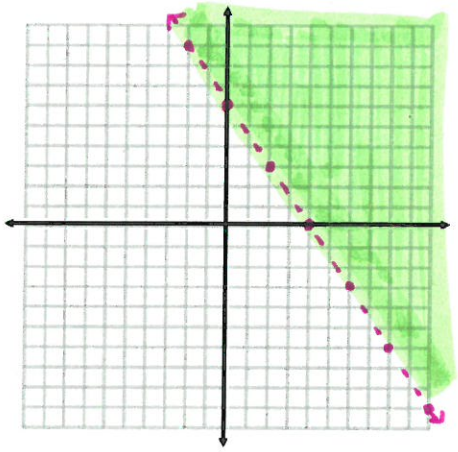
$x-0.7 \leq 0.02$ and $x-0.7 \geq -0.02$

$x \leq 0.72$ mm and $x \geq 0.68$ mm

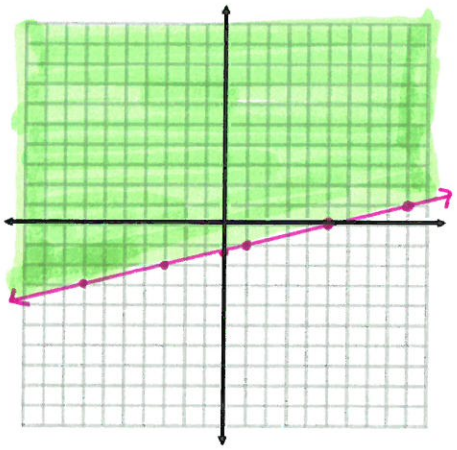
$0.68\text{ mm} \leq x \leq 0.72\text{ mm}$

Graph the inequalities below.

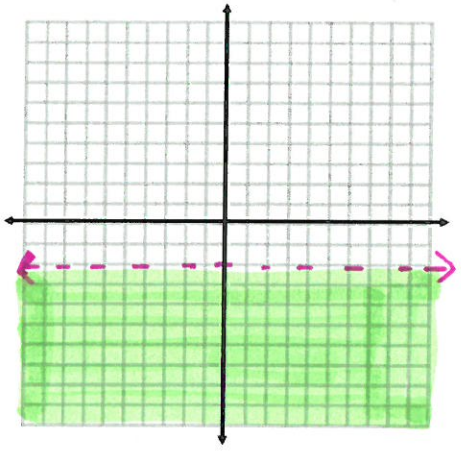
16. $3x+2y>12$ $y > \frac{-3}{2}x+6$



17. $x-4y \leq 5$ $y \geq \frac{1}{4}x-\frac{5}{4}$ or $y \geq \frac{1}{4}x-1\frac{1}{4}$



18. $y<-2$



Tell whether the ordered pair is a solution of the inequality.

19. $\frac{2}{3}x-4y<6$; $(21, 2)$

$\frac{2}{3}(21)-4(2) \overset{?}{<} 6$

$14-8<6$

$6<6$

No

20. $x \leq -3$; $(1, -5)$

$1 \leq -3$

No