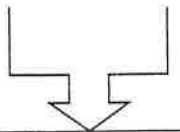


Name _____ m. of 3 = multiples of 3



Special Topics Homework Outline – Unit 2: Ineq.

| Date | Lesson/Objective | | Homework |
|-----------------------|--|--|-----------------------|
| Friday Sept. 9 | Inequalities <i>To write, graph, and solve linear inequalities</i> Early Release | | HW 2-1 |
| Monday Sept. 12 | Compound Inequalities <i>Objective: To solve compound inequalities</i> | | HW 2-2 |
| Tuesday Sept. 13 | Compound Inequalities <i>Objective: To solve compound inequalities</i> | | HW 2-3 |
| Wednesday Sept. 14 | Absolute Value Equations <i>Objective: To solve absolute value equations</i> | | HW 2-4 |
| Thursday Sept. 15 | Absolute Value Inequalities <i>Objective: To solve absolute value inequalities</i> | | HW 2-5 |
| Friday Sept. 16 | Application Problems <i>Objective: To solve application problems that involve inequalities</i> | | HW 2-6 |
| Monday Sept. 19 | Review | | Complete Review WS |
| Tuesday Sept. 20 | Test – Unit 2 | | |

Do All Work on
Notebook Paper!

HW 2-1

3-4

Practice

Form G

Solving Multi-Step Inequalities

Solve each inequality. Check your solutions.

1. $3f + 9 < 21$

2. $4n - 3 \geq 105$

3. $33y - 3 \leq 8$

4. $2 + 2p > -17$

5. $12 > 60 - 6r$

6. $-5 \leq 11 + 4j$

Do on notebook paper!!

Graph solution set

Solve each inequality.

7. $2(k + 4) - 3k \leq 14$

8. $3(4c - 5) - 2c > 0$

9. $15(j - 3) + 3j < 45$

10. $22 \geq 5(2y + 3) - 3y$

11. $-53 > -3(3z + 3) + 3z$

12. $20(d - 4) + 4d \leq 8$

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

14. $3v - 12 > 5v + 10$

Solve each inequality, if possible. If the inequality has no solution, write *no solution*. If the solutions are all real numbers, write *all real numbers*.

15. $6w + 5 > 2(3w + 3)$

16. $-5r + 15 \geq -5(r - 2)$

17. $-2(6 + s) < -16 + 2s$

18. $9 - 2x < 7 + 2(x - 3)$

19. $2(n - 3) \leq -13 + 2n$

20. $-3(w + 3) < 9 - 3w$

3-6

Practice

Compound Inequalities

Write a compound inequality that represents each phrase. Graph the solutions.

1. all real numbers that are less than -3 or greater than or equal to 5
2. The time a cake must bake is between 25 minutes and 30 minutes, inclusive.

DO on
notebook paper
& graph
solutions

Solve each compound inequality. Graph your solutions.

3. $5 < k - 2 < 11$
4. $-4 > y + 2 > -10$
5. $6b - 1 \leq 41$ or $2b + 1 \geq 11$
6. $5 - m < 4$ or $7m > 35$
7. $3 < 2p - 3 \leq 12$
8. $3 > \frac{11 + k}{4} \geq -3$
9. $3d + 3 \leq -1$ or $5d + 2 \geq 12$
10. $9 - c < 2$ or $-3c > 15$
11. $4 \leq y + 2 \leq -3(y - 2) + 24$
12. $5z + 3 < -7$ or $-2z - 6 > -8$

Write each interval as an inequality. Then graph the solutions.

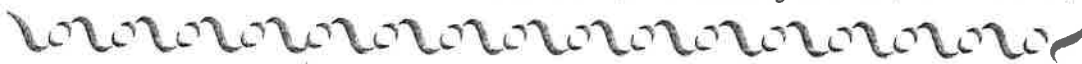
13. $(-1, 10]$
14. $[-3, 3]$
15. $(-\infty, 0]$ or $(5, \infty)$
16. $[3, \infty)$
17. $(-\infty, 4)$
18. $[25, 50)$

Do All work on notebook paper.

HW 2-3

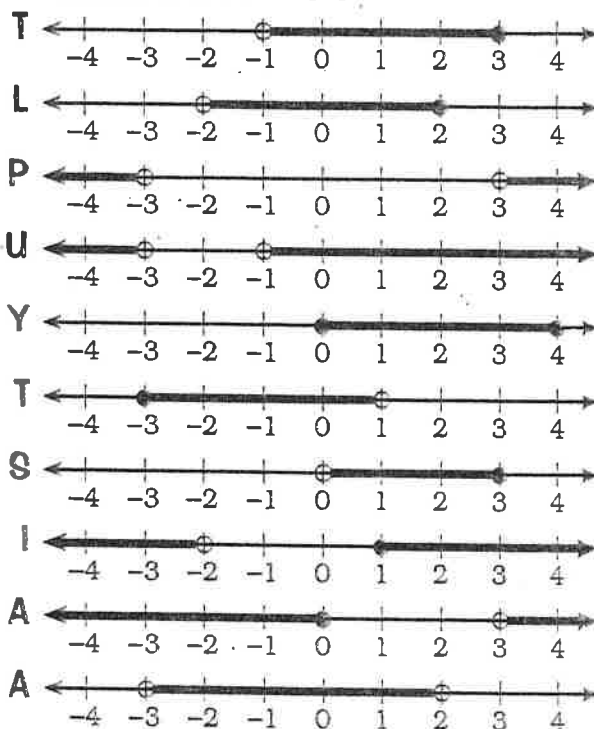
What Do You Call a Female Bug That Floats?

Graph the solution for each exercise. Find your answer in the answer column, then write the letter of the solution in the box containing the exercise number.

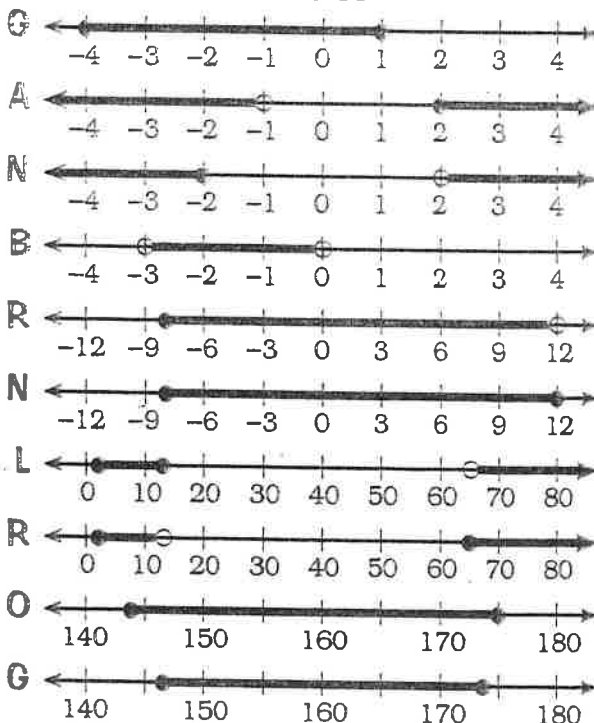


- 1 $2x \geq -6$ and $x - 1 < 0$
- 2 $-7x < 14$ and $3x + 2 \leq 8$
- 3 $-8 < x - 5 < -3$
- 4 $1 \leq 4x + 1 \leq 17$
- 5 $1 \leq -2x + 7 < 9$
- 6 $3x - 1 < -7$ or $4x + 9 \geq 13$
- 7 $-5x > 15$ or $x - 5 > -6$
- 8 $4 - 15x \geq 4$ or $12x > 36$
- 9 $-3x + 10 \geq 16$ or $9 - x < 7$
- 10 $\frac{x}{2} \geq -2$ and $5 - 2x \geq 3$
- 11 $8 < 8 - \frac{1}{3}x < 9$
- 12 $-6x - 1 > 5$ or $11 + 4x \geq 19$
- 13 Today in Anchorage, the expected low temperature is -8°F , and the expected high temperature is 12°F . Express this range as a compound inequality.
- 14 Flix Theater has a reduced ticket price for children who are at least 2 years old but less than 13 years old. The same price is given to seniors who are at least 65 years old. Model these ranges on a number line.
- 15 Your heart rate rises when you exercise. During aerobic exercise, your heart rate should be at least $0.7(220 - a)$, but no more than $0.85(220 - a)$, where a is your age. Find the target range if you are 14 years old.

Answers for Exercises 1-8



Answers for Exercises 9-15



| | | | | | | | | | | | | | | |
|---|----|---|----|---|---|----|---|----|---|----|---|----|---|---|
| 3 | 11 | 7 | 15 | 4 | 8 | 13 | 1 | 10 | 6 | 14 | 2 | 12 | 9 | 5 |
|---|----|---|----|---|---|----|---|----|---|----|---|----|---|---|

HW 2-4 Do All work on notebook paper!

Why Are Bacteria Bad at Math?

Solve each equation and find your solution in the answer columns. Write the letter of the answer in each box that contains the exercise number. If the answer has a ●, shade in the box instead of writing a letter in it.
 EXTRA: Complete the table and graph for each absolute value function.

- ① $|x| = 6$
- ② $|n - 4| = 9$
- ③ $|y + 5| = 16$
- ④ $|w| + 3 = 10$
- ⑤ $|8x| = 72$
- ⑥ $|2y - 7| = 13$
- ⑦ $|9 + 4d| = 15$
- ⑧ $|1 - 6t| = 55$
- ⑨ $3|x + 11| = 24$
- ⑩ $2|a - 17| = 10$
- ⑪ $|8k - 3| + 5 = 40$
- ⑫ $4|2 - 9y| = 28$
- ⑬ $10 + |m - 6| = 7$
- ⑭ $3|8 + d| - 1 = 29$
- ⑮ $12\left|\frac{x}{4} + 11\right| = 60$
- ⑯ $9 - \left|2 - \frac{1}{3}y\right| = 0$

- Answers 1-8
- Ⓒ 9, -9
 - ⒱ -9, $9\frac{1}{3}$
 - Ⓕ 7, -2
 - Ⓖ 6, -6
 - $1\frac{1}{2}, -6$
 - ⒯ 7, -7
 - Ⓖ $1\frac{1}{2}, -7$
 - Ⓐ 13, -5
 - Ⓔ 10, -3
 - Ⓒ 9, -6
 - ⒰ 11, -21
 - ⒱ no solution

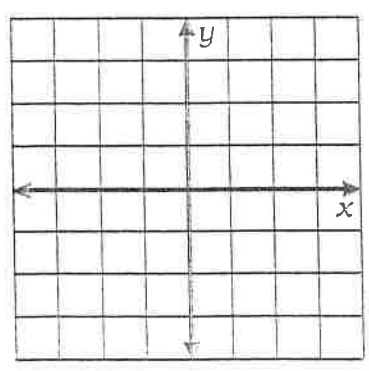
- Answers 9-16
- Ⓔ -24, -18
 - $-\frac{5}{9}, 1$
 - Ⓕ -21, 33
 - Ⓐ 22, 12
 - Ⓐ $4\frac{3}{4}, 2$
 - Ⓖ 2, -18
 - Ⓕ -3, -19
 - Ⓐ -21, -4
 - Ⓖ -24, -64
 - Ⓐ $4\frac{3}{4}, -4$
 - Ⓒ -3, 12
 - Ⓖ no solution

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|----|----|----|---|----|---|----|----|----|----|---|---|----|----|----|----|---|----|----|----|---|---|
| 4 | 9 | 6 | 11 | 12 | 13 | 3 | 16 | 4 | 14 | 10 | 16 | 11 | 7 | 1 | 11 | 12 | 15 | 14 | 8 | 14 | 15 | 14 | 2 | 5 |
|---|---|---|----|----|----|---|----|---|----|----|----|----|---|---|----|----|----|----|---|----|----|----|---|---|

extra:
Absolute Value Functions

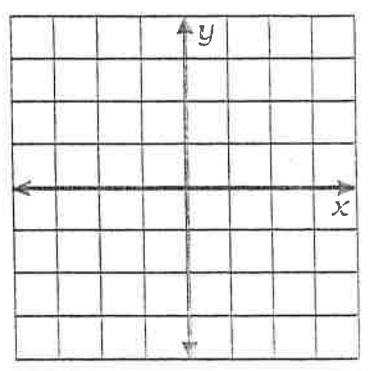
$y = |x|$

| x | y |
|----|---|
| -3 | |
| -2 | |
| -1 | |
| 0 | |
| 1 | |
| 2 | |
| 3 | |



$y = |x + 1| - 2$

| x | y |
|----|---|
| -4 | |
| -3 | |
| -2 | |
| -1 | |
| 0 | |
| 1 | |
| 2 | |

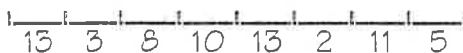


(HW 2-5) DO ALL work on notebook paper!

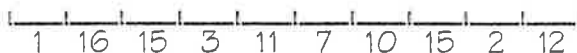
What Kind of Music



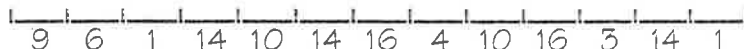
1. Do bungee jumpers like?



2. Do psychiatrists like?



3. Do baseball players like?



Graph the solution for each inequality on a number line, then find your answer in the answer columns. Each time the exercise number appears in the code, write the letter of the answer in the space above it. If the answer has a ●, leave the space blank.

1 $|x| \geq 2$

2 $|2y| > 6$

9 $|5x| > 30$

10 $|12a| \leq 60$

3 $|n| < 2$

4 $|4x| \leq 12$

11 $|k - 2| \geq 5$

12 $|3 + y| < 4$

5 $|w + 1| \geq 2$

6 $|d - 3| < 1$

13 $|5x - 10| > 20$

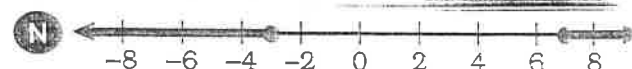
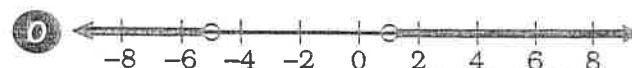
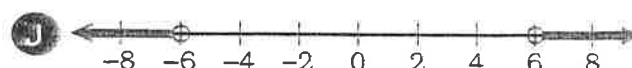
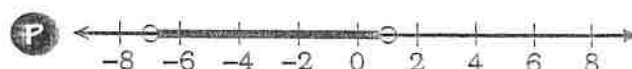
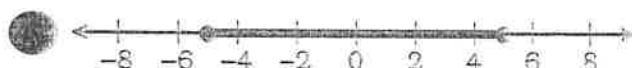
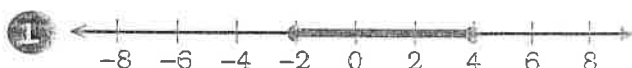
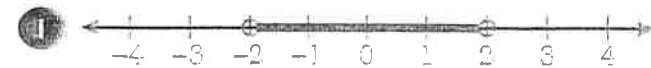
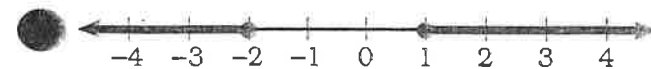
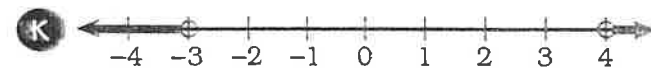
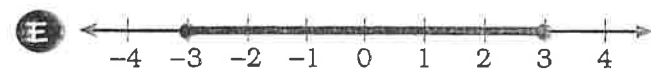
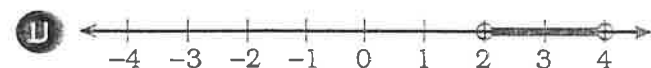
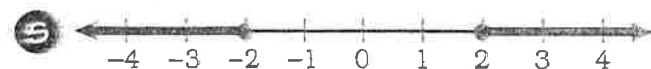
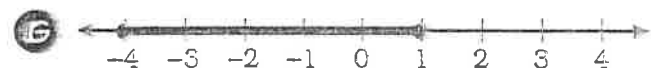
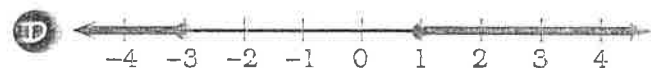
14 $9|m + 1| \leq 36$

7 $|2x - 1| > 7$

8 $|2y + 3| \leq 5$

15 $|3 - 2b| \geq 7$

16 $3|8 + 4t| < 48$



Do ALL work on notebook paper!

2-6 W^S

Which Arctic Animals Love Math?

Solve each equation or inequality. Cross out the letter next to your solution. When you finish, the answer to the title question will remain.

S
R
D
E
S

P
C
A
T
I
R
D
E
S

P
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I
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M
E

Answers 1-6

| |
|--------------------|
| 2, 4 |
| 12, 18 |
| 7, -17 |
| -5, 18 |
| 2, -8 |
| $\frac{1}{2}, -5$ |
| $-5, 2\frac{2}{5}$ |
| $2\frac{2}{5}, 4$ |
| 2, 5 |

Answers 7-12

| |
|----------------------------|
| $-5 < x < 5$ |
| $-27 < x < 13$ |
| $-5 < x < 9$ |
| $x \leq -2$ or $x \geq 2$ |
| $-3 < x < 7$ |
| $x \leq -8$ or $x \geq 3$ |
| $x \leq -5$ or $x \geq 12$ |
| $-24 < x < 11$ |
| $x \leq -7$ or $x \geq 13$ |

Answers 13-18

| |
|-------------------------------|
| $-2 \leq y \leq 2\frac{2}{7}$ |
| $-15 \leq y \leq 24$ |
| 1, $-1\frac{1}{4}$ |
| $y < -7$ or $y > -1$ |
| 1, 6 |
| $y < -4$ or $y > 10$ |
| $-11 \leq y \leq 21$ |
| $y < -5$ or $y > 2$ |
| 0, 6 |

- | | |
|-------------------------|-----------------------|
| 1 $ x + 5 = 12$ | 2 $ 2n - 7 = 3$ |
| 3 $ 9 + 3a = 15$ | 4 $ 16 - 5y = 4$ |
| 5 $8 k - 15 = 24$ | 6 $7 4d + 9 = 77$ |
| 7 $ x \geq 2$ | 8 $ x < 5$ |
| 9 $ x - 3 \geq 10$ | 10 $ 2x + 5 \geq 11$ |
| 11 $ x + 7 < 20$ | 12 $ 3x - 6 < 15$ |
| 13 $ 8p + 1 + 3 = 12$ | 14 $4 9 - 3b = 36$ |
| 15 $ 6 - 2y > 14$ | 16 $ 7y - 1 \leq 15$ |
| 17 $3 y + 4 - 10 > -1$ | 18 $ 5 - y \leq 16$ |

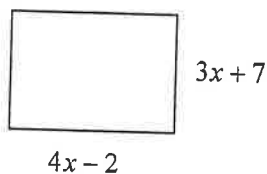
Unit 2 Review

I. Solve the following. Box your answer. Graph the solution set for each inequality on a number line. SHOW ALL WORK ON NOTEBOOK PAPER!!!

| | | |
|---------------------------|-------------------------------|---|
| 1) $-3(x - 2) \leq -9$ | 2) $-4 < -2x - 8$ | 3) $-5x - 3 \geq 2x - 11$ |
| 4) $\frac{x}{3} - 4 > -1$ | 5) $-7 < 3x - 1 < 9$ | 6) $2x - 1 \geq -4$ and $x + 3 < 5$ |
| 7) $ x - 1 = 4$ | 8) $2 x - 3 - 1 = 7$ | 9) $4 - 2x \geq -6$ or $\frac{x}{2} > -1$ |
| 10) $ x - 3 > 5$ | 11) $-3x > -6$ or $x + 1 < 5$ | 12) $x > 2$ and $x < -3$ |

II.

10. Find the perimeter of the rectangle.



15. $-4(3 - 6d) = 9(2d - 2)$

11. A triangle has a base 8 cm and area 42 cm squared.
What is the height of the triangle?

16. $6(4z + 2) = 3(8z + 4)$

12. $-8t - 3t + 2 = -5t - 6t$

17. $\frac{p - 22}{2} = 6p$

13. $\frac{3}{5} = \frac{y + 1}{9}$

18. Solve for y.
 $4x + 3y = 18$

14. $\frac{5n + 1}{8} = \frac{3n - 5}{4}$