

Chapter 3 Test Review





<u>Chapter Review Problems:</u>	<u>What to expect on the test:</u>
pg. 168 # 13 & 15 pg. 189 # 5 pg. 193 # 1 & 2 pg. 197 # 1& 2 pg. 219 #27-31 <i>odd</i> pg. 223 # 10-12, #13-35 odd pg. 225 # 41 pg. 226 # 49-56 all pg. 226 # 58-61 problems below on this document	<ul style="list-style-type: none">• A total of 26 questions• Multiple choice & open-response questions• graphing problems• word problems where you answer <u>must</u> be written as a sentence

Inequality & Interval Notation Review

#1-4 Directions: Solve each compound inequality. Write your answers in both inequality and interval notation. Then graph each problem in both inequality and interval notation.

1) $9x + 2 > 92$ or $3x - 8 < -20$

2) $-24 < -4 + 10p \leq 36$

Inequality Notation Solution:	Inequality Notation Solution:
Graph: 	Graph: 
Interval Notation Solution:	Interval Notation Solution:
Graph: 	Graph: 

3) $-6n + 4 > 46$ or $8 - 10n < 18$

4) $-8 < 5n + 7 \leq 32$

Inequality Notation

Solution:

Graph:



Inequality Notation

Solution:

Graph:



Interval Notation

Solution:

Graph:



Interval Notation

Solution:

Graph:



#5-8 Directions: From each graph, write the answers in both inequality and interval notation.

5)



Inequality Notation: _____

Interval Notation: _____

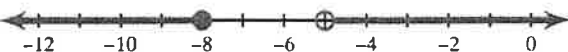
6)



Inequality Notation: _____

Interval Notation: _____

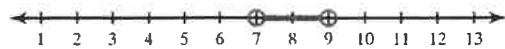
7)



Inequality Notation: _____

Interval Notation: _____

8.)



Inequality Notation: _____

Interval Notation: _____

Chapter 3 Test Review

Key

Chapter Review Problems:	What to expect on the test:
<p style="font-size: 2em; font-weight: bold; transform: rotate(-90deg); position: absolute; left: -50px; top: 50px;">Answers attached</p> <ul style="list-style-type: none"> pg. 168 # 13 & 15 ✓ pg. 189 # 5 ✓ pg. 193 # 1 & 2 ✓ pg. 197 # 1 & 2 ✓ pg. 219 # 27-31 odd ✓ pg. 223 # 10-12, #13-35 odd ✓ pg. 225 # 41 ✓ pg. 226 # 49-56 all ✓ pg. 226 # 58-61 ✓ <p>problems below on this document ✓ (Answers below)</p>	<ul style="list-style-type: none"> • A total of 26 questions • Multiple choice & open-response questions • graphing problems • word problems where you answer <u>must</u> be written as a sentence

Inequality & Interval Notation Review

#1-4 Directions: Solve each compound inequality. Write your answers in **both** inequality and interval notation. Then graph each problem in **both** inequality and interval notation.

1) $9x + 2 > 92$ or $3x - 8 < -20$

2) $-24 < -4 + 10p \leq 36$

<p>Inequality Notation Solution:</p> $\begin{array}{r} 9x + 2 > 92 \\ -2 \quad -2 \\ \hline 9x > 90 \\ \hline x > 10 \end{array}$ $\begin{array}{r} 3x - 8 < -20 \\ +8 \quad +8 \\ \hline 3x < -12 \\ \hline x < -4 \end{array}$ <p style="text-align: center; font-weight: bold; border: 1px solid black; border-radius: 10px; padding: 5px;">$x > 10$ or $x < -4$</p> <p>Graph: </p>	<p>Inequality Notation Solution:</p> $\begin{array}{r} -24 < -4 + 10p \leq 36 \\ +4 \quad +4 \\ \hline -20 < 10p \leq 40 \\ \hline -2 < p \leq 4 \end{array}$ <p style="text-align: center; font-weight: bold; border: 1px solid black; border-radius: 10px; padding: 5px;">$p > -2$ and $p \leq 4$</p> <p>Graph: </p>
<p>Interval Notation Solution:</p> <p style="text-align: center; font-weight: bold; border: 1px solid black; border-radius: 10px; padding: 5px;">$x < -4$ or $x > 10$</p> <p style="text-align: center; font-weight: bold; border: 1px solid black; border-radius: 10px; padding: 5px;">$(-\infty, -4) \text{ or } (10, \infty)$</p> <p>Graph: </p>	<p>Interval Notation Solution:</p> <p style="text-align: center; font-weight: bold; border: 1px solid black; border-radius: 10px; padding: 5px;">$p > -2$ and $p \leq 4$</p> <p style="text-align: center; font-weight: bold; border: 1px solid black; border-radius: 10px; padding: 5px;">$(-2, 4]$</p> <p>Graph: </p>

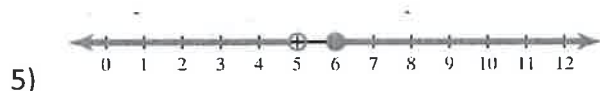


3) $-6n + 4 > 46$ or $8 - 10n < 18$

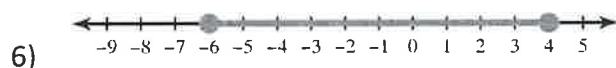
4) $-8 < 5n + 7 \leq 32$

<p>Inequality Notation Solution:</p> $\begin{array}{r} -6n + 4 > 46 \\ -4 \quad -4 \\ \hline -6n > 42 \\ \hline -6 \end{array} \quad \text{or} \quad \begin{array}{r} 8 - 10n < 18 \\ -8 \quad -8 \\ \hline -10n < 10 \\ \hline -10 \end{array}$ <p>$n < -7$ or $n > -1$ *FLIP *FLIP</p> <p>Graph: </p>	<p>Inequality Notation Solution:</p> $\begin{array}{r} -8 < 5n + 7 \\ -7 \quad -7 \\ \hline -15 < 5n \\ \hline 5 \end{array} \quad \& \quad \begin{array}{r} 5n + 7 \leq 32 \\ -7 \quad -7 \\ \hline 5n \leq 25 \\ \hline 5 \end{array}$ <p>$n > -3$ and $n \leq 5$</p> <p>Graph: </p>
<p>Interval Notation Solution:</p> $n < -7$ or $n > -1$ $(-\infty, -7) \text{ or } (-1, \infty)$ <p>Graph: </p>	<p>Interval Notation Solution:</p> $n > -3$ and $n \leq 5$ $(-3, 5]$ <p>Graph: </p>

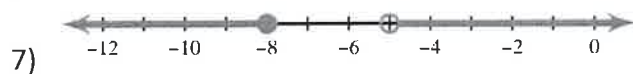
#5-8 Directions: From each graph, write the answers in **both** inequality and interval notation.



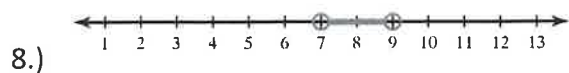
Inequality Notation: $x < 5$ or $x \geq 6$ Interval Notation: $(-\infty, 5) \text{ or } [6, \infty)$



Inequality Notation: $x \geq -6$ and $x \leq 4$
 $-6 \leq x \leq 4$ Interval Notation: $[-6, 4]$



Inequality Notation: $x \leq -8$ or $x > -5$ Interval Notation: $(-\infty, -8] \text{ or } (-5, \infty)$



Inequality Notation: $x > 7$ and $x < 9$
 $7 < x < 9$ Interval Notation: $(7, 9)$

pg. 168 #13 #15

13) A) Is 2 a solution? B) Is 3 a solution? C) Is -1 a solution?

$$8(2) - 6 \leq 10$$

$$16 - 6 \leq 10$$

$$10 \leq 10$$

Yes, true

$$8(3) - 6 \leq 10$$

$$24 - 6 \leq 10$$

$$18 \leq 10$$

No, false

$$8(-1) - 6 \leq 10$$

$$-8 - 6 \leq 10$$

$$-14 \leq 10$$

Yes, true

15) A) Is 0.5 a solution? B) Is 2 a solution? C) Is 4 a solution?

$$\frac{6 - (0.5)}{(0.5)} \geq 11$$

$$\frac{5.5}{0.5} \geq 11$$

$$11 \geq 11$$

Yes, true

$$\frac{6 - (2)}{2} \geq 11$$

$$\frac{4}{2} \geq 11$$

$$2 \geq 11$$

No, false

$$\frac{6 - (4)}{4} \geq 11$$

$$\frac{2}{4} \geq 11$$

$$\frac{1}{2} \geq 11$$

No, false

pg. 189 #5

$$P \geq 2l + 2w$$

$$24 \geq 2l + 2(4)$$

$$24 \geq 2l + 8$$

$$\begin{array}{r} -8 \\ -8 \end{array}$$

$$16 \geq 2l$$

$$\begin{array}{r} 2 \\ 2 \end{array}$$

$$8 \geq l$$

→ sentence: The possible lengths of the other sides are greater than 0cm and less than or equal to 8cm.

pg. 193 #1 & 2

1) $y \geq 12$

2) $m + 8 < 5$

pg. 197 # 1 & 2

Roster:

1) $G = \{1, 3, 5, 7, 9, 11, 13, 15, 17\}$

Set-builder:

$G = \{x / x \text{ is an odd natural number, } x < 18\}$

2) $5 + d \leq 8$
 $-5 \quad -5$

$d \leq 3$

$\{d / d \leq 3\}$

pg. 219 #27-31 odd

27) $|3x - 5| < 14$
 $\swarrow \quad \searrow$

$3x - 5 < 14$
 $+5 \quad +5$

$3x - 5 > -14$
 $+5 \quad +5$

$\frac{3x}{3} < \frac{19}{3}$

$\frac{3x}{3} > \frac{-9}{3}$

$x < \frac{19}{3}$ and $x > -3$

$\{x / x > -3\} \cap \{x / x < \frac{19}{3}\}$

$$29) |8w-1| \geq 7$$

↓ ↓

$$8w-1 \geq 7$$
$$+1 \quad +1$$

$$\frac{8w \geq 8}{8}$$

$$w \geq 1$$

$$8w-1 \leq -7$$
$$+1 \quad +1$$

$$\frac{8w \leq -6}{8}$$

$$w \leq -\frac{3}{4}$$

$$\left\{ w \mid w \leq -\frac{3}{4} \right\} \cup \left\{ w \mid w \geq 1 \right\}$$

$$31) 2|x-7| > 28$$

$$\frac{2|x-7|}{2} > \frac{28}{2}$$

$$|x-7| > 14$$

↓ ↓

$$x-7 > 14$$
$$+7 \quad +7$$

$$x > 21$$

$$x-7 < -14$$
$$+7 \quad +7$$

$$x < -7$$

$$\left\{ x \mid x < -7 \right\} \cup \left\{ x \mid x > 21 \right\}$$

pg. 223 # 10-12, #13-35 odd

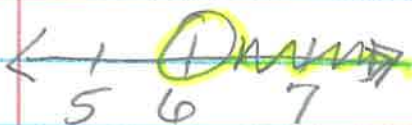
10) $x > 5$

11) $x \leq -2$

12) $x > -5.5$

13) $w + 3 > 9$
 $-3 \quad -3$

$w > 6$



15) $-4 < t + 8$
 $-8 \quad -8$

$-12 < t$

$t > -12$



17) $22.3 \leq 13.7 + h$
 $-13.7 \quad -13.7$

$8.6 \leq h$

$h \geq 8.6$



19) $4.25 + x \leq 15.00$
 $-4.25 \quad -4.25$

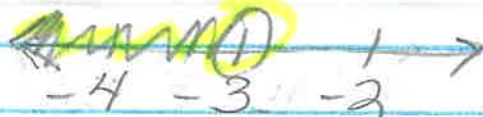
$x \leq 10.75$

You can spend no more than \$10.75.

21) $-6t > 18$

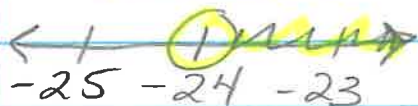
-6

$t < -3$ *FLIP



$$23) \quad -4 \left(-\frac{h}{4} \leq 6 \right)$$

$$h > -24 \quad * \text{FLIP}$$



$$25) \quad -\frac{3}{5}n \geq -9$$

$$-\frac{5}{3} \cdot -\frac{3}{5}n \geq -9 \cdot \frac{-5}{3}$$

$$n \leq 15 \quad * \text{FLIP}$$

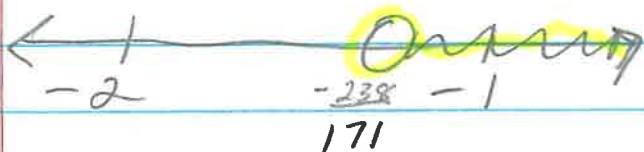


$$27) \quad -17.1m < 23.8$$

$$-17\frac{1}{10}m < 23\frac{8}{10}$$

$$\left(-\frac{10}{171} \right) \cdot -\frac{171}{10}m < \frac{238}{10} \left(\frac{-10}{171} \right)$$

$$m > \frac{-238}{171} \quad * \text{FLIP}$$



$$29) \quad \begin{array}{r} 4K - 1 \geq -3 \\ +1 \quad +1 \end{array}$$

$$\frac{4K \geq -2}{4}$$

$$K \geq -\frac{1}{2}$$

$$31) \quad \begin{array}{r} 3t > 5t + 12 \\ -5t \quad -5t \end{array}$$

$$\frac{-2t > 12}{-2}$$

$$t < -6 \quad *FLIP$$

$$33) \quad 4 + \frac{x}{2} > 2x$$

$$\begin{array}{r} 4 + \frac{1}{2}x > 2x \\ -\frac{1}{2}x \quad -\frac{1}{2}x \end{array}$$

$$\frac{2}{3} \cdot 4 > \frac{3}{2}x \cdot \frac{2}{3}$$

$$\frac{8}{3} > x$$

$$x < \frac{8}{3}$$

$$35) \quad 13.5a + 7.4 \leq 85.7$$

$$\begin{array}{r} -7.4 \quad -7.4 \end{array}$$

$$\frac{13.5a \leq 78.3}{13.5}$$

$$a \leq 5.8$$

or

$$a \leq 5\frac{4}{5}$$

pg. 225 # 41

$$41) \quad B' = \{1, 3, 5, 7\}$$

pg. 226 # 49-56 all

$$49) \quad |y| = 3$$

$$y = -3 \text{ or } 3$$

$$50) \quad |n+2| = 4$$

$$\begin{array}{r} n+2 = 4 \\ -2 \quad -2 \end{array}$$

$$\begin{array}{r} n+2 = -4 \\ -2 \quad -2 \end{array}$$

$$n = 2 \text{ or } n = -6$$

$$51) \quad \begin{array}{ccc} 4 + |r+2| = 7 \\ -4 \qquad \qquad -4 \end{array}$$

$$|r+2| = 3$$

$$r+2 = 3$$
$$\begin{array}{r} -2 \\ -2 \end{array}$$

$$r+2 = -3$$
$$\begin{array}{r} -2 \\ -2 \end{array}$$

$$r = 1 \text{ or } r = -5$$

$$52) \quad |x+3| = -2$$

No solution, \emptyset

$$53) \quad |5x| \leq 15$$

$$\frac{5x \leq 15}{5}$$

$$\frac{5x \geq -15}{5}$$

$$x \leq 3 \text{ and } x \geq -3$$

$$-3 \leq x \leq 3$$

$$54) \quad |3d+5| < -2$$

No solution, \emptyset

$$\frac{|2x-7|}{+1} - 1 > 0$$

55)

$$|2x-7| > 1$$

$$2x-7 > 1 \quad \text{or} \quad 2x-7 < -1$$

$$\frac{2x > 8}{2}$$

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

$$x > 4 \quad \text{or} \quad x < 3$$

$$x < 3 \quad \text{or} \quad x > 4$$

56)

$$\frac{4|k+5|}{4} > 8$$

$$|k+5| > 2$$

$$k+5 > 2$$

$$k+5 < -2$$

$$-5 \quad -5$$

$$-5 \quad -5$$

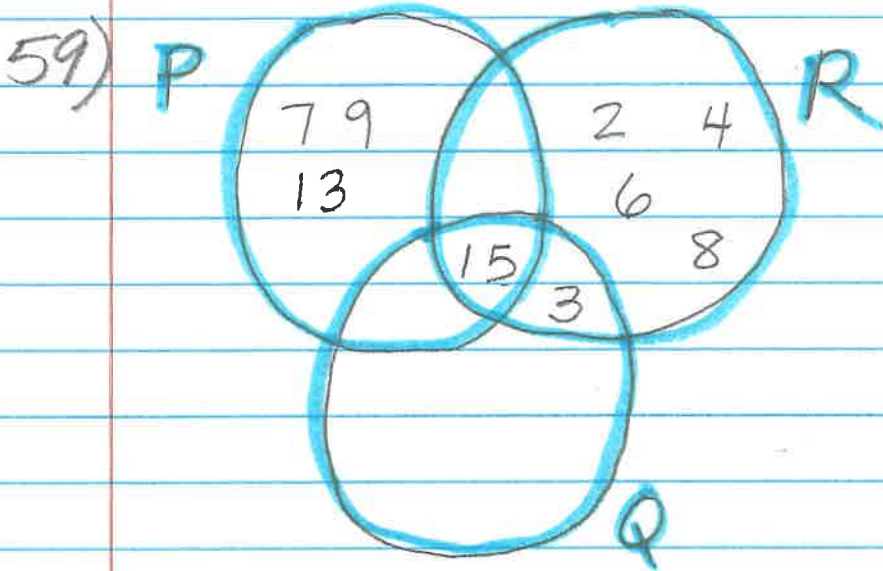
$$k > -3 \quad \text{or} \quad k < -7$$

or

$$k < -7 \quad \text{or} \quad k > -3$$

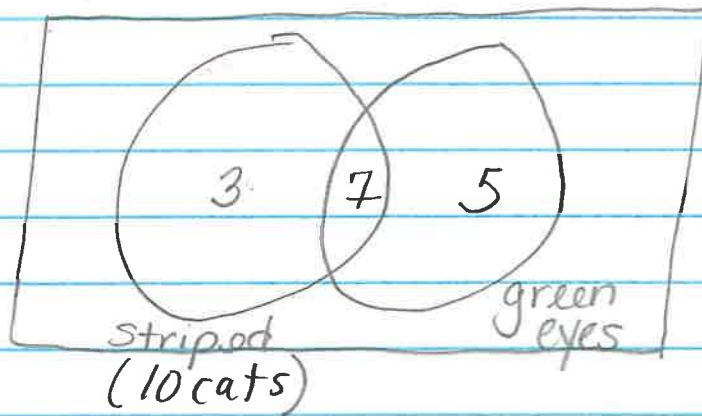
pg. 226 #58 - lol all

58) $A \cup B = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$
or
 $A \cup B = A$



60) $N \cap P = \{x / x \text{ is a multiple of } 6\}$

61)



$U = 15 \text{ cats}$

5 cats
have
green
eyes
only

