

I. Answer the following, showing appropriate work

1. The measure of an obtuse angle is  $3x + 9$ . What is the range of possible values of  $x$ ?

3

$$90 < 3x + 9 < 180$$

$$81 < 3x < 171$$

$$\boxed{27 < x < 57}$$

2. Find all values of  $x$  so that the perimeter is less than or equal to 50.

3

$$P \leq 50$$

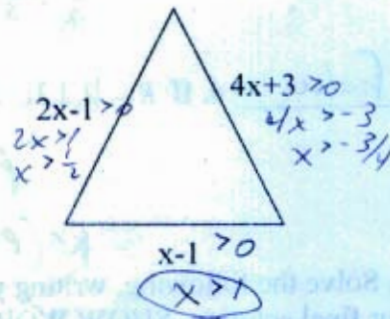
$$(2x-1) + (4x+3) + (x-1) \leq 50$$

$$7x + 1 \leq 50$$

$$7x \leq 49$$

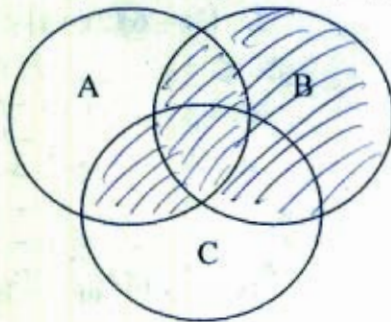
$$x \leq 7$$

$$\boxed{1 < x \leq 7}$$



3. Shade the region that represents  $(A \cap C) \cup B$

3



4.  $A = \{2, 4, 6, 8, 10, 12\}$   
 $D = \{1, 4, 7, 10, 13\}$

2

$$A \cap D = \{4, 10\}$$

2

$$A \cup D = \{1, 2, 4, 6, 7, 8, 10, 12, 13\}$$

13

13

II. Determine whether each of the statements below is true or false. Write out "True" or "False"

True 1. If  $\frac{-24}{8} < \frac{8x}{8}$ , then  $x > -3$   
 $-3 < x \quad x > -3$


False 2.  $|9| - |-12| = |9+12|$   
 $9 - 12 = 21$   
 $-3 \neq 21$

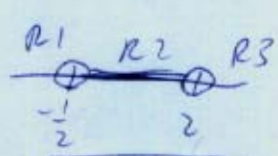
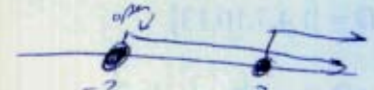
False 3. If a and b are both negative and  $a > b$ , then  $\frac{1}{a} > \frac{1}{b}$   
 $a > b$   
 $\frac{1}{a} < \frac{1}{b}$

False 4. If  $R = \{1, 2, 3\}$ ,  $P = \{2, 4, 6\}$ , and  $M = \{1, 2, 4\}$  then  $R \cap (P \cup M) = \{2\}$   
 $P \cup M = \{1, 2, 4, 6\}$   
 $R \cap (P \cup M) = \{1, 2\}$

III. Solve the following, writing your answers in correct notation. Make sure I can find your final solution. SHOW WORK!

1.  $|4x - 5| \geq -2$   
 ~~$4x - 5 \geq -2$   
 $4x \geq -2 + 5$   
 $4x \geq 3$   
 $x \geq \frac{3}{4}$~~   
 all real #'s

3.  $(-3)(x+4) > -12$  and  $x+5 > 1$   
 $(x+4) < 4$  and  $x > -4$   
 $x < 0$  and  
  
 $-4 < x < 0$

2.  $(3x-6)(2x+1) < 0$   
 $3x-6=0 \quad 2x+1=0$   
 $3x=6 \quad 2x=-1$   
 $x=2 \quad x=-\frac{1}{2}$   
  
 $R1 (-) \quad (-)(-) = + \quad P$   
 $R2 (0) \quad (-)(+) = - \quad T$   
 $R3 (+) \quad (+)(+) = + \quad F$   
 $4x-2 \geq 10$  or  $-3x-1 < 8$   
 $4x \geq 12 \quad -3x < 9$   
 $x \geq 3$  or  $x > 3$   
  
 $x \geq 3$

EXTRA CREDIT #1 - Show all work and write your answer in an acceptable form.

Find the 2 smallest odd integers whose sum is at least 75

$n + (n+2) \geq 75$   
 $2n \geq 73$   
 $n \geq 36\frac{1}{2}$   
 $n = 37$   
 $n+2 = 39$

2 or

4 or

16

+3

$\frac{36}{2} = 18$   
 $\frac{72}{2} = 36$   
 $\frac{16}{2} = 8$