

1

$$3x - 1 = \sqrt{3k^2 - x}$$

If k > 0 and x = 2 in the equation above, what is the value of k? (Grid in)  $3(2)-1 = \sqrt{3K^2-2}$ 





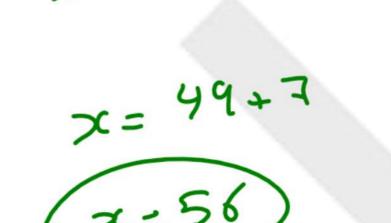
2

$$\sqrt{x-7} = 7^2$$

What value of x satisfies the given equation?

- A) 0
- Shift
- x-7 = 49 ==

- B) 14
- C) 42
- D) 56



3

$$\sqrt{k+2}-x=0$$

In the equation above, k is a constant. If x = 9, what is the value of k?

- A) 1
- B) 7
- C) 16
- D) 79
- Shift or
- JK+2 = 9
  - K = 81-2



# Equations Part C



1

The solution set of the equation

$$\sqrt{2x+1} - x = -1$$
 is:

$$\sqrt{2(1)+1}$$

$$\mathbb{C}^{4}$$

$$\mathbb{R} \left\{ 0 \right\}$$



$$x-2=\sqrt{x+10}$$

Which of the following values of x is a solution to the equation above?

- A) -1

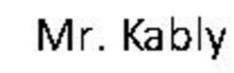
3

Which of the following is a solution to the equation

$$\sqrt{14-x} + 2 = x_2$$

$$\sqrt{14-x} + 2 = x_2$$
 $\sqrt{14-(-2)} + 2 = -2 \times x$ 

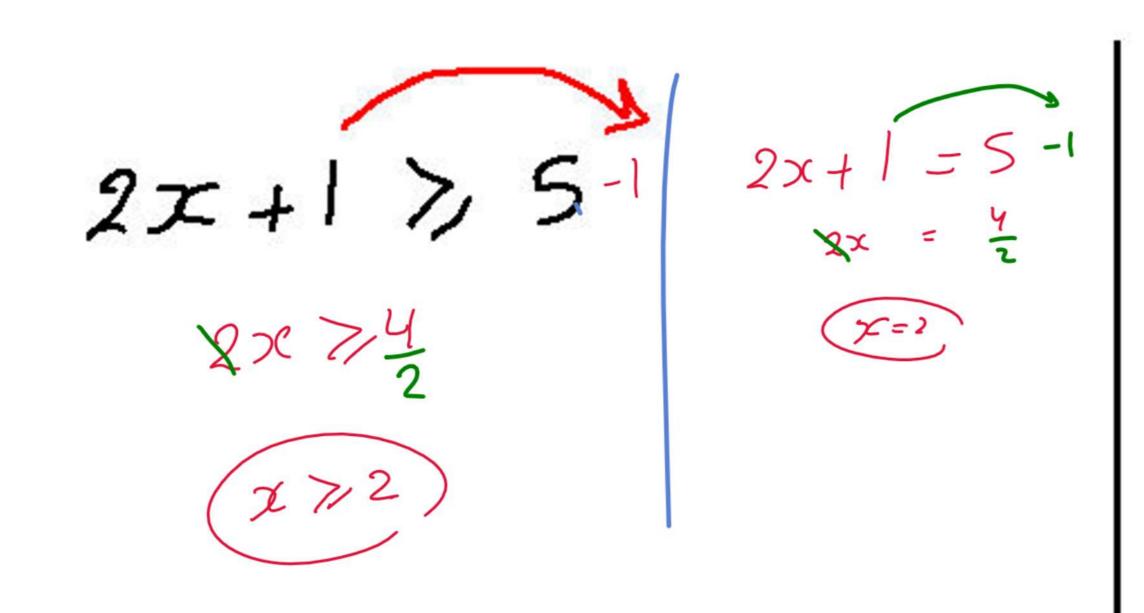
- A. I only
- B. II only
- C III only
- D. Inand III

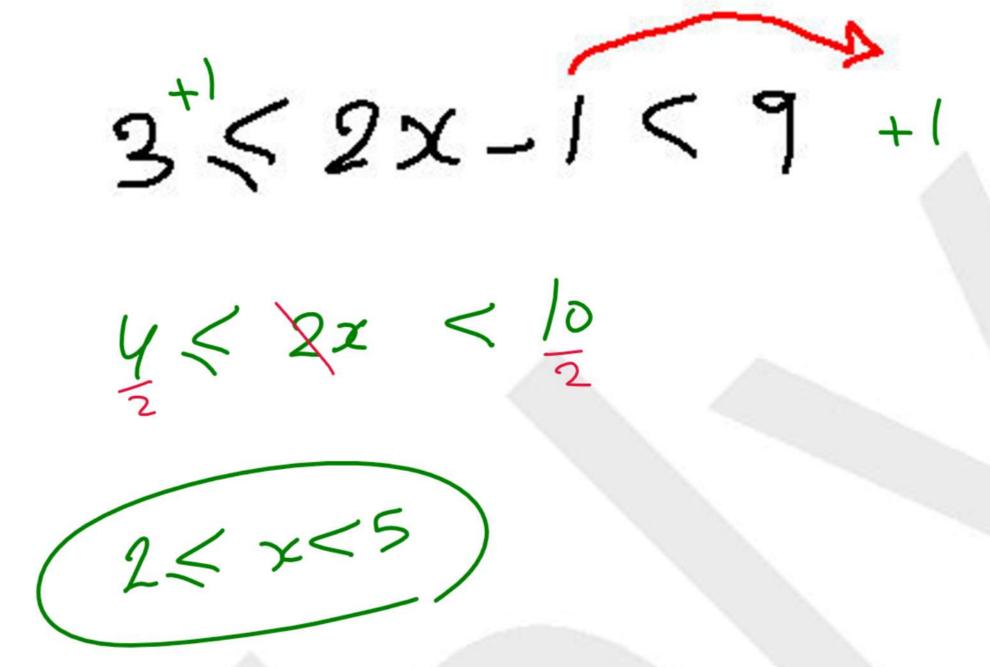


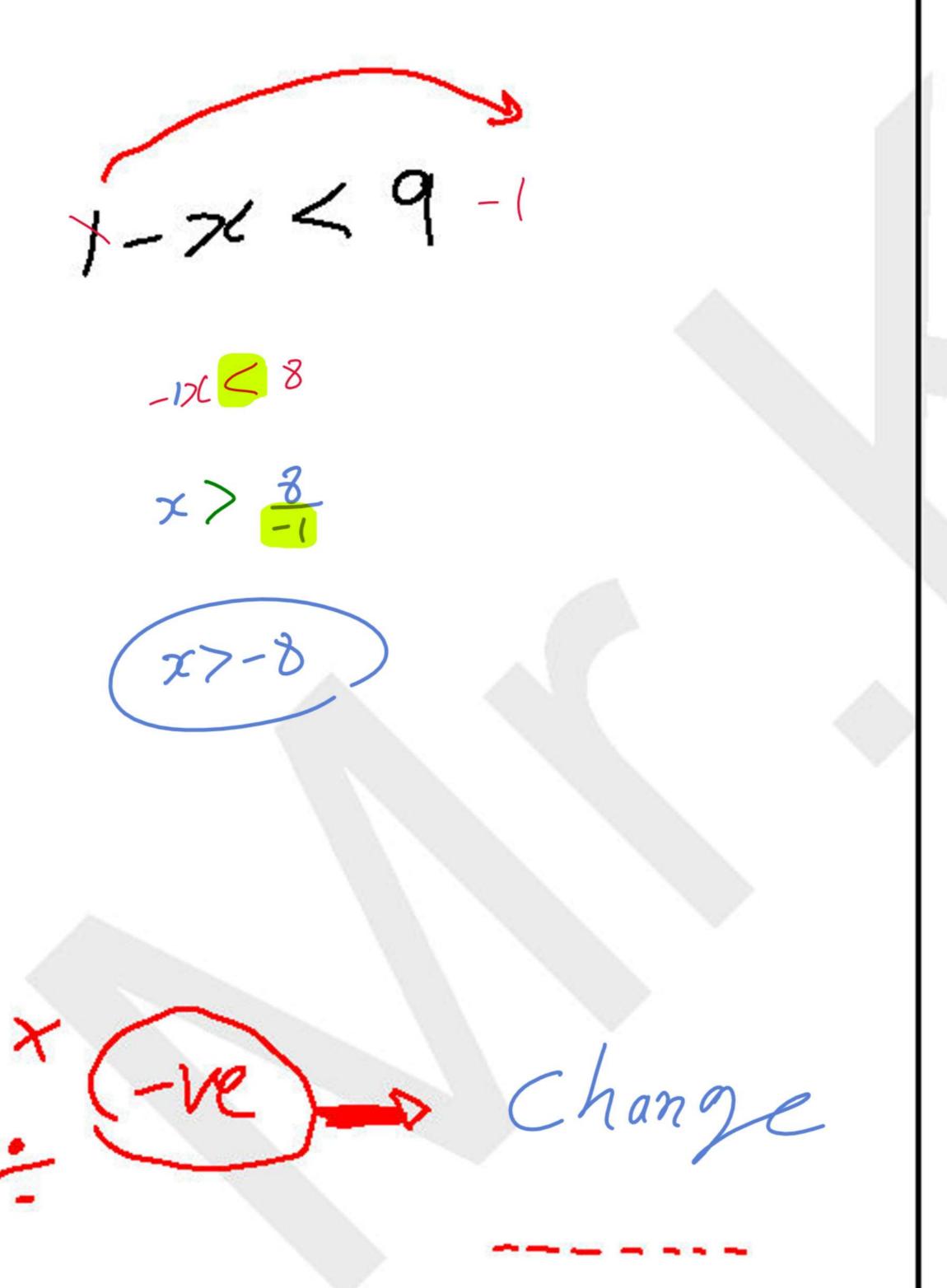
















### Inequalities (Solve)



Among the following ordered pairs, which one is a solution of the system

$$\begin{cases} y > x \\ y \le -x \end{cases}?$$

$$(-1,0)$$

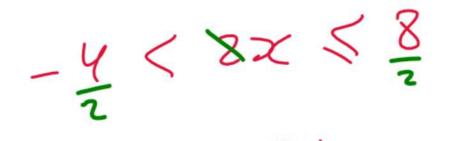
$$B. (0,-1)$$

$$(A) (-1,0) \qquad 0 \leq +1 \leq$$

**B.** 
$$(0,-1)$$
 **C.**  $(-1,2)$ 

2

If  $3 < 2x + 7 \le 15$ , which of the following integers represents the smallest value for x + 3?



$$500 + 3$$
 $1 + 3 = 2$ 

Among the following ordered pairs, which one is a solution of the system

$$\begin{cases} y < x \\ y > x-2 \end{cases}$$
?

2 < 3x-1 < 11 which of the following integers represents Greatest value of x+2?



## Inequalities (Solve)



If  $2z - 7(z - 1) \le 1$  and z is an integer,

If 
$$2z - 7(z - 1) \le 1$$
 and z is an integer, what is the least possible value of  $z$ ?

\*\*A. -2  $2(-2) - 7(-2-1) = 17 \le 1$ 

\*\*B. 0  $2(0) - 7(0-1) = 7 \le 1$ 

\*\*C. 2  $2(2) - 7(2-1) = -3 \le 1$ 

$$-3 < 2x - y \le 14$$

Which point could be the solution for the inequality above?

**A.** (0,3) 
$$2(4) - (3) = -3$$
  
**B.** (4, -8)  $2(4) - (-8) = 16$   
**C.** (3,4)  $2(3) - 4 = 2$   
**D.** (4,12)

3

Which of the following numbers is NOT a solution of the inequality  $3x - 5 \ge 4x - 3$ ?

- A. -1
- C. -3
- D. -5

Consider the system  $\begin{cases} -2x + y < 3 \\ y + x \ge -5 \end{cases}$ For x = 2, what is the highest integer value of y?



**Basics** 



x Greater than 10 x>10

I Smaller than 10

 $\chi < 10$ 

Ket least 20

K720

Kat most 20

K < 20

More than 5

11>5

Mless than 5

11<5

× no more than 10

tran 10 x < 10

zno le

than 10

x 7/10







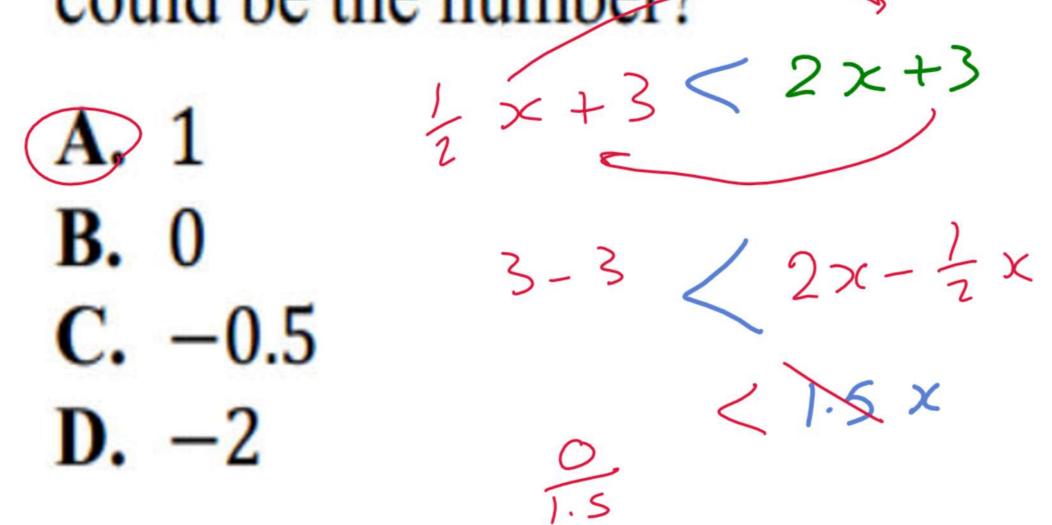


## Inequalities (Translation)



1

If the sum of half a number and 3 is smaller than twice the same number added to 3, which of the following could be the number?



2

The rental-company manager is supplying chairs and umbrellas for a pool party that 90 guests will attend. The manager will provide enough chairs for at least  $\frac{2}{3}$  of the guests and umbrellas for at

most  $\frac{2}{3}$  of the guests, where each umbrella shades 3 guests. Which of the following systems represents the number of chairs, c, and the number

represents the number of chairs, c, and the number of umbrellas, u, that the manager will provide for the party?

A) c ≤ 60   

$$u \ge 20$$
  
B) c ≥ 60   
 $u \ge 20$   
C) c ≤ 60   
 $u \le 20$   
D) c ≥ 60   
 $u \le 20$ 

3

Jackie has two summer jobs. She works as a tutor, which pays \$12 per hour, and she works as a lifeguard, which pays \$9.50 per hour. She can work no more than 20 hours per week, but she wants to earn at least \$220 per week. Which of the following systems of inequalities represents this situation in terms of x and y, where x is the number of hours she tutors and y is the number of hours she works as a lifeguard?

A) 
$$12x + 9.5y \le 220$$
  
 $x + y \ge 20$ 

B) 
$$12x + 9.5y \le 220$$
  
 $x + y \le 20$ 

C) 
$$12x + 9.5y \ge 220$$
  
 $x + y \le 20$ 

D) 
$$12x + 9.5y \ge 220$$
  
 $x + y \ge 20$ 

4

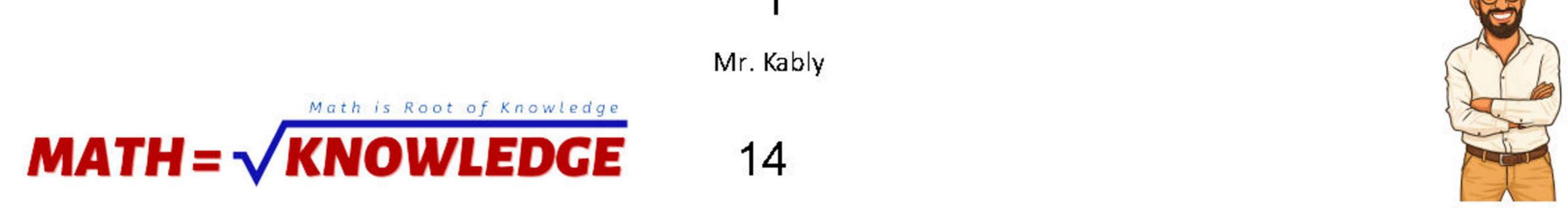
Claire, a metalsmith, has 500 grams (g) of sterling silver. She wants to use the sterling silver to create at least 20 rings and at least 10 bracelets. She uses 3 g of sterling silver to create each ring and 40 g of sterling silver to create each bracelet. Which of the following systems of inequalities represents this situation, where r is the number of rings and b is the number of bracelets Claire can create with the sterling silver?

A) 
$$3r + 40b \le 500$$
  
 $r \ge 3$   
 $b \ge 40$ 

B) 
$$3r + 40b \le 500$$
  
 $r \ge 20$   
 $b \ge 10$ 

C) 
$$20r + 10b \le 500$$
,  $r \ge 3$   
 $b \ge 40$ 

D) 
$$20r + 10b \le 500$$
  
 $r \ge 20$   
 $b \ge 10$ 



### Inequalities (translation)



1

A craftsman is looking for two kinds of paint from a wholesaler. The first kind **a** is packaged in 10 kg jars, the second **b** in 25 kg jars. The 10 kg jar costs \$45 and the 25 kg one costs 120\$. The load must not exceed 250 kg and the total sum must be at least 900\$ in order to get a discount. Which system of inequalities verifies the given information?

2

In a certain board game, a player can make only horizontal and vertical moves with his or her piece on condition that the total number of moves does not exceed 40 moves out of which at least 10 are horizontal. Every horizontal move costs 5 points and every vertical move costs 3 points, and a player Sarah has only 800 points left. If h is the number of horizontal moves that Sarah can make, and v is the number of vertical moves Sarah can make, which of the following systems of inequalities best represents the situation?

Situation?

A. 
$$h + v \ge 40$$

$$h \le 10$$

$$5h + 3v \le 800$$

B. 
$$h + v \le 40$$
 $h \ge 10$ 
 $h + \frac{v}{-} < 800$ 

C. 
$$h + v \le 40$$

$$h \ge 10$$

$$5h + 3v \le 800$$

D. 
$$h + v \ge 40^{\circ}$$
$$h \ge 10$$
$$\frac{h}{5} + \frac{v}{3} \ge 800$$

3

Fred wants to save enough money to pay for a car that costs \$7,500 and 12 months of insurance that costs \$110 per month. Fred has already saved \$6,000 and plans to save an additional \$350 per month. Which inequality can be used to determine the number of months, x, Fred could save in order to have enough money to buy the car and pay for 12 months of insurance?

A) 
$$7,500 - 11.0x \le 6,000 - 250(12)$$

B) 
$$7,500 \div 110x \le 6,000 + 250(12)$$

C) 
$$7,500 - 110(12) \le 6,000 - 350x$$

D) 
$$7,500 + 110(12) \le 6,000 + 350x$$

4

Ryan has 1,500 yards of yarn. He wants to knit at least 2 scarves and at least 3 hats. Each scarf requires 300 yards of yarn, and each hat requires 120 yards of yarn. If s represents the number of scarves and h represents the number of hats, which of the following systems of inequalities represents this situation?

A) 
$$s+h \le 1,500$$
  
 $s \ge 2$   
 $h \ge 3$ 

B) 
$$2s + 3h \le 1,500$$
  
 $s \ge 2$   
 $h \ge 3$ 

C) 
$$2s + 3h \le 1,500$$
  
 $s \ge 300$   
 $h \ge 120$ 

D) 
$$300s + 120h \le 1,500$$
  
 $s \ge 2$   
 $h \ge 3$ 

