$2x + 5 = 9$

$2x = 9 - 5$

$\frac{2x}{2} = \frac{4}{2}$

$x = 2$

$5(a+b) - 1 = 9$

$5(a+b) = 9 + 1$

$\frac{5(a+b)}{5} = \frac{10}{5}$

$a + b = 2$

SAT

M1: 22 pbms, 35 Min

M2: 22 pbms, 35 Min

Calc. + Desmos.

EST

S3: 20 pbms, 30 Min — Non Calc

S4: 38 pbms, 65 Min — Calc.

1

If $x+3=2x-2$, what is the value of $x-4$?

A. 9

B. 5

C. 4

D. 1

2

If $3(c+d)=5$, what is the value of $c+d$?

A) $\frac{3}{5}$

B) $\frac{5}{3}$

C) 3

D) 5

3

$$5w-12=3w$$

What value of w in the solution of the equation above?

4

$$2x+7=15$$

What is the solution to the equation above?

5

$$y=5x+4$$

Given the equation above, if $y=12$, what is he value of x?

6

$$\frac{1}{2}x-700=0$$

What value of x satisfies the equation above?

1

If $4t - 10 = 11a$, and $a = -2$, what is the value of $10t - 10$?

A. -40

B. -8

C. -3

D. 1

2

$$2\left(\frac{x}{3} - \frac{1}{4}\right) - 2x = \frac{2}{5}$$

What is the solution to the equation above?

A. $x = -\frac{9}{28}$

B. $x = -\frac{27}{40}$

C. $x = -\frac{27}{10}$

D. $x = -\frac{3}{40}$

$$\frac{x}{2} = \frac{5}{4}$$

$$4x = 2(5)$$

1

If $\frac{1}{x-y} = \frac{3}{5y}$, which of the following proportions is equivalent?

A. $\frac{x}{y} = \frac{3}{8}$

B. $\frac{x}{y} = \frac{8}{3}$

C. $\frac{x}{y} = \frac{8}{15}$

D. $\frac{x}{y} = \frac{15}{8}$

2

If $2x - 3 = 0$, what is the value of $\frac{7}{3}x + \frac{1}{2}$?

3

If $\frac{2a}{3b} = \frac{1}{5}$, what is the value of $\frac{b}{a}$?

4

If $\frac{7}{x+2} = 0.5$, what is the value of x?

A) 1.5

B) 3

C) 12

D) 16

1

$$\frac{3y-2(4-2y)}{3} = \frac{-11+3(2+3y)}{5}$$

What is the value of y in the equation above?

shift Solve

3.125

2

If $\frac{2}{5}$ of $10x$ is 6 more than x, what is the value of x ?

A) 2

B) 3

C) 4

D) 6

$\frac{2}{5}(10x) = 6 + x$

shift Solve

3

If $\frac{2x-4}{4} - \frac{x+1}{6} = t + 1$ *and* $t = 3$, what is the value of x?

A. 27

B. -1

C. 11

D. $\frac{31}{2}$

$\frac{2x-4}{4} - \frac{x+1}{6} = 3 + 1$

shift Solve

$15 - 5 = \frac{31}{2}$

$\sqrt{\quad}$ = +ve or zero

~~-ve~~

$\sqrt{\quad} = -5$

$\sqrt{x+6} = x$

without solving

~~a) -1~~

~~b) -2~~

~~c) -3~~

d) 3

$\sqrt{x+1} = 5^2$

a) 4

b) 6

c) 24

d) 26

$x+1 = 25$

$x = 25-1$

$x = 24$

$\sqrt{25} = 5$ ~~± 5~~

$x^2 = \pm\sqrt{25}$

$x = \pm 5$

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)

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

3

2

Shift Solve

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

What value of x satisfies the given equation?

A) 0

B) 14

C) 42

D) 56

$x - 7 = 49$

$x = 49 + 7$

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

$\sqrt{k+2} - 9 = 0$

$\sqrt{k+2} = 9^2$

$k + 2 = 81 - 2$

$k = 79$

Shift Solve

1

The solution set of the equation $\sqrt{2x+1} - x = -1$ is:

A. $\{0, 1, 4\}$

B. $\{1, 4\}$

C. $\{4\}$

D. $\{0\}$

2

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

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

A) -1

B) 1

C) 4

D) 6

3

Which of the following is a solution to the equation $\sqrt{14 - x} + 2 = x$?

I. -2

II. 1

III. 5

A. I only

B. II only

C. III only

D. I and III

$2x+1 \geq 5$ -1

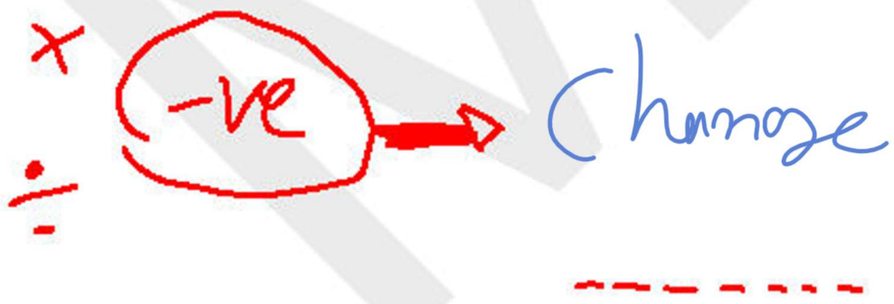
$2x \geq \frac{4}{2}$

$x \geq 2$

$x - x < 9$ -1

$-1x < \frac{8}{-1}$

$x > -8$



$3 \overset{+1}{\leq} 2x-1 < 9$ $+1$

$\frac{4}{2} \leq 2x < \frac{10}{2}$

$2 \leq x < 5$

1

Among the following ordered pairs, which one is a solution of the system $\begin{cases} y > x \\ y \leq -x \end{cases}$?

A. $(-1,0)$
B. $(0,-1)$
C. $(-1,2)$
D. $(0,1)$

2

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

A. 1
B. 2
C. −2
D. −1

3

Among the following ordered pairs, which one is a solution of the system $\begin{cases} y < x \\ y > x-2 \end{cases}$?

B. *(1, 1)*
A. *(2, 1)*
C. *(4, 1)*
D. *(1, 4)*

4

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

A. *3*
B. *4*
C. *5*
D. *6*

1

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

A. -2
B. 0
C. 2
D. 4

2

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

Which point could be the solution for the inequality above?

A. $(0, 3)$
B. $(4, -8)$
C. $(3, 4)$
D. $(4, 12)$

3

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

A. -1
B. -2
C. -3
D. -5

4

Consider the system $\begin{cases} -2x + y < 3 \\ y + x \geq -5 \end{cases}$.

For x = 2, what is the highest integer value of y?

x Greater than 5 $x > 5$

x Smaller than 5 $x < 5$

K at least 10 $K \geq 10$

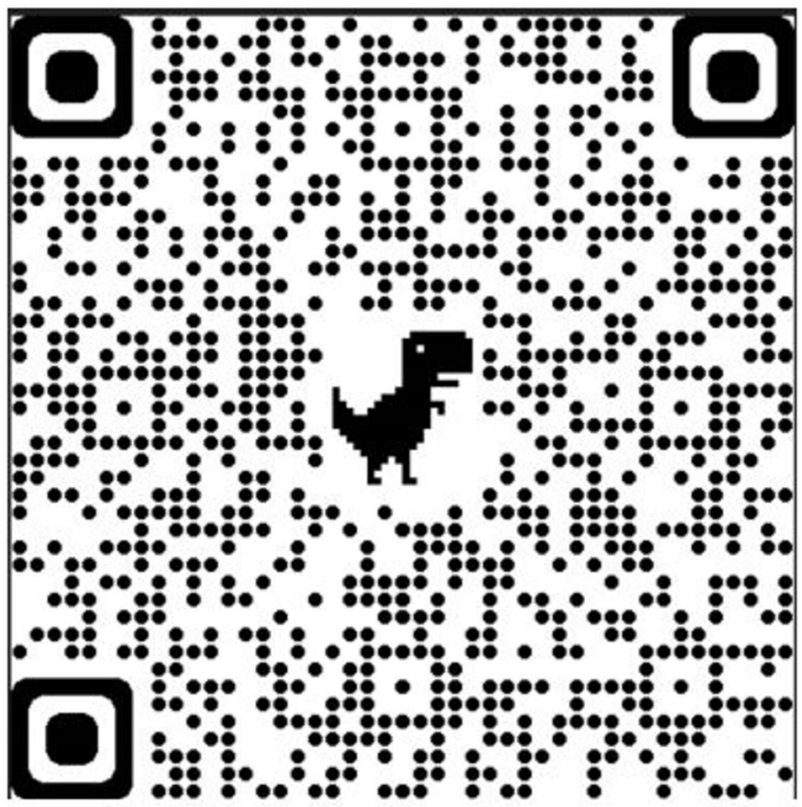
K at most 10 $K \leq 10$

M More than 8 $M > 8$

M less than 8 $M < 8$

x no more than 10 $x \leq 10$

x no less than 10 $x \geq 10$



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?

A. 1

B. 0

C. −0.5

D. −2

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 of umbrellas, u, that the manager will provide for the party?

A) $c \leq 60$
$u \geq 20$

B) $c \geq 60$
$u \geq 20$

C) $c \leq 60$
$u \leq 20$

D) $c \geq 60$
$u \leq 20$

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) $12x + 9.5y \leq 220$
$x + y \geq 20$

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

C) $12x + 9.5y \geq 220$
$x + y \leq 20$

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

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) $3r + 40b \leq 500$
$r \geq 3$
$b \geq 40$

B) $3r + 40b \leq 500$
$r \geq 20$
$b \geq 10$

C) $20r + 10b \leq 500$
$r \geq 3$
$b \geq 40$

D) $20r + 10b \leq 500$
$r \geq 20$
$b \geq 10$

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?

A. $\begin{cases} 10a + 25b \geq 250 \\ 45a + 120b \leq 900 \end{cases}$

B. $\begin{cases} 10a + 25b \leq 250 \\ 45a + 120b \leq 900 \end{cases}$

C. $\begin{cases} 10a + 25b \geq 250 \\ 45a + 120b \geq 900 \end{cases}$

D. $\begin{cases} 10a + 25b \leq 250 \\ 45a + 120b \geq 900 \end{cases}$

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?

A. $h + v \geq 40$
$h \leq 10$
$5h + 3v \leq 800$

B. $h + v \leq 40$
$h \geq 10$
$\frac{h}{5} + \frac{v}{3} \leq 800$

C. $h + v \leq 40$
$h \geq 10$
$5h + 3v \leq 800$

D. $h + v \geq 40$
$h \geq 10$
$\frac{h}{5} + \frac{v}{3} \geq 800$

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) $7{,}500 - 110x \leq 6{,}000 - 250(12)$

B) $7{,}500 + 110x \leq 6{,}000 + 250(12)$

C) $7{,}500 - 110(12) \leq 6{,}000 - 350x$

D) $7{,}500 + 110(12) \leq 6{,}000 + 350x$

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) $s + h \leq 1{,}500$
$s \geq 2$
$h \geq 3$

B) $2s + 3h \leq 1{,}500$
$s \geq 2$
$h \geq 3$

C) $2s + 3h \leq 1{,}500$
$s \geq 300$
$h \geq 120$

D) $300s + 120h \leq 1{,}500$
$s \geq 2$
$h \geq 3$

1

If $|2b-1| \leq 3$, how many possible integer values of b are there?

$-3 \overset{+1}{\leq} 2b-1 \leq 3 \overset{+1}{}$

$\frac{-2}{2} \leq \frac{2b}{2} \leq \frac{4}{2}$

$-1 \leq b \leq 2$

$-1, 0, 1, 2$ (4)

2

If $|2x-3| \leq 4$, what is the greatest possible value of $|3x-2|$? **(Grid in)**

$-4 \overset{+3}{\leq} 2x-3 \leq 4 \overset{+3}{}$

$\frac{-1}{2} \leq \frac{2x}{2} \leq \frac{7}{2}$

$|3(\frac{7}{2})-2|$

$= 8.5$

3

If $|-2b-3| \leq 7$, how many possible integer values of b are there?

$-7 \overset{+3}{\leq} -2b-3 \leq 7 \overset{+3}{}$

$\frac{-4}{-2} \leq \frac{-2b}{-2} \leq \frac{10}{-2}$

$2 \geq b \geq -5$

$2, 1, 0, -1, -2, -3, -4, -5$ (8)

4

If $|4x+2| \leq 10$, How many possible values of x are there?

5

If a is a solution of the equation $|2x-4| = 5$, what is the distance between a and the point of coordinate 2 on the number line?

A. 0.5
B. 2.5
C. 4.5
D. 5