Solve for y.

distribution

$w(y+z)=x+6$

$\frac{w}{1}=\frac{x+6}{y+z}$

cross

$wy+wz=x+6$ $-wz$ $-wz$

$wy = x+6-wz$

$\frac{wy}{w} = \frac{x+6-wz}{w}$

$y= \frac{x+6-wz}{w}$

Solve for x_2.

lcd: x1*x2

$x_1x_2\left(\frac{8}{1}\right)=\left(\frac{y}{x_1}+\frac{y}{x_2}\right)x_1x_2$

$8x1x2= \frac{y \cdot x_1 x_2}{x_1} + \frac{y\, x_1 x_2}{x_2}$

$8x1x2 = yx2 + yx1$

$-yx_1 \quad -yx_2$

$8x1x2 - yx2 = yx1$ factor out

$x2(8x1 - y) = yx1$

$\frac{x2(8x1 - y)}{8x_1 - y} = \frac{yx1}{8x_1 - y}$

$x2 = \frac{y\,x1}{8x1 - y}$

Let n be the middle number of three consecutive integers. Write an expression for the sum of these integers.

n is middle

n-1 previous

n+1 next

$n - 1 + n + n + 1 = \boxed{3n}$

Lucy works as a tutor for $\$11$ an hour and as a waitress for $\$8$ an hour. This month, she worked a combined total of 105 hours at her two jobs.

Let t be the number of hours Lucy worked as a tutor this month. Write an expression for the combined total dollar amou she earned this month.

T $\frac{11\$}{hr} \cdot t\,hr = 11t\$$

W $\frac{8\$}{hr}(105-t)hr = 8(105-t)\$$

$11t + 840 - 8t$

$3t + 840$

David's Coffee Shop makes a blend that is a mixture of two types of coffee. Type A coffee costs David 4.70 per pound, and type B coffee costs 5.85 per pound. This month's blend used three times as many pounds of type B coffee as type A, for a total cost of 623.00. How many pounds of type A coffee were used?

A	$4.70\$/lb$	x lb	$4.7x$ $
B	$5.85\$/lb$	$3x$ lb	$17.55x$ $
		$4x$ lb	623 $

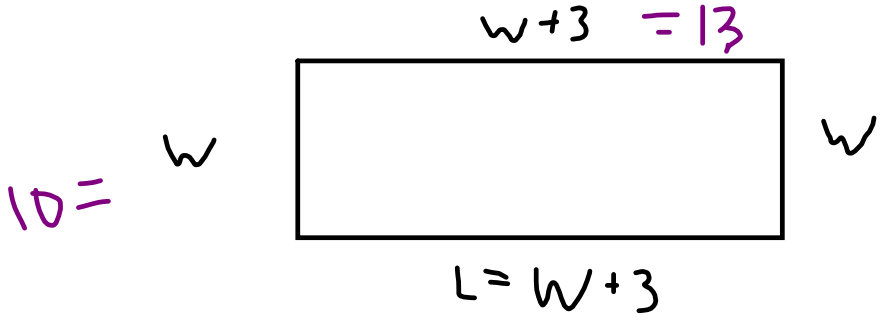
$4.7x+17.55x=623$

$22.25x=623$

$x=28$

$x=155.75$

The length of a rectangle is 3 yd longer than its width. If the perimeter of the rectangle is 46 yd, find its area.



$P = 4w + 6 = 46$

$-6 \quad -6$

$4w = 40$

$\frac{4w}{4} = \frac{40}{4}$

$w = 10$

$A = L \cdot W$

$13 \cdot 10$

130

The wholesale price for a pair of shoes is $3.50 . A certain department store marks up the wholesale price by 50% . Find the price of the pair of shoes in the department store.

Round your answer to the nearest cent, as necessary.

$3.50 + .5 * 3.50$ $3.5(1.5)=5.25$

$3.50 + 1.75 = 5.25$

A laptop has a listed price of $519.99 before tax. If the sales tax rate is 7.75% , find the total cost of the laptop with sales tax included.

Round your answer to the nearest cent, as necessary.

$519.99 * 1.0775=$ 560.289...

An alloy is a mixture of metals. Suppose that a certain alloy is made by mixing 28 grams of an alloy containing 15% copper with 100 grams of an alloy containing 55% copper.

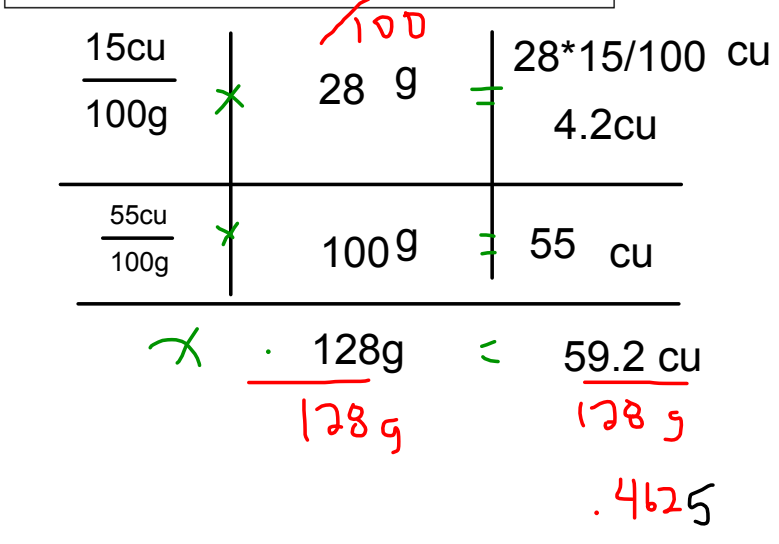
Answer the questions below. Do not do any rounding.

(a) How many grams of copper are in the resulting mixture?

grams 59.2

(b) What percentage of the resulting mixture is copper?

% 46.25



Solving a percent mixture problem using a linear equation

Donna invested her savings in two investment funds. The $6000 that she invested in Fund A returned a 2% profit. The amount that she invested in Fund B returned a 6% profit. How much did she invest in Fund B, if both funds together returned a 5% profit?

Let x represent the amount (in dollars) invested in Fund B.
The amount invested in Fund A was 6000 dollars.
Fund A had a 2% profit and Fund B had a 6% profit.
The total amount invested was $(x+6000)$ dollars, with an overall profit of 5% .

	Amount invested	Profit percent	Profit amount
Fund A	6000	2%	= 120
Fund B	x	6%	= .06x
Total	6000+x	5%	= 300+.05x

$$120 + .06x = 300 + .05x$$

2.4

Inequalities $x + 2 > 7$

$-2 \quad -2$

$x > 5$

ex: $-x > 7$

truth
0 is bad

$$\frac{-x}{-1} < \frac{7}{-1}$$

$x < -7$

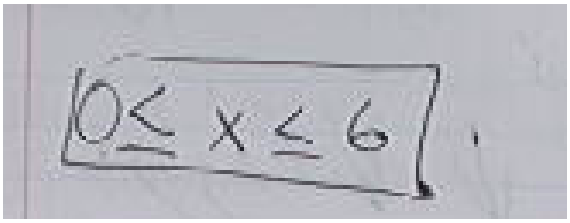
DONT DIVIDE BY NEGATIVE WITHOUT SWITHCHING INEQUALITY

1. Write the following as an inequality.

0 *is less than or equal to* x *and*

6 *is greater than or equal to* x

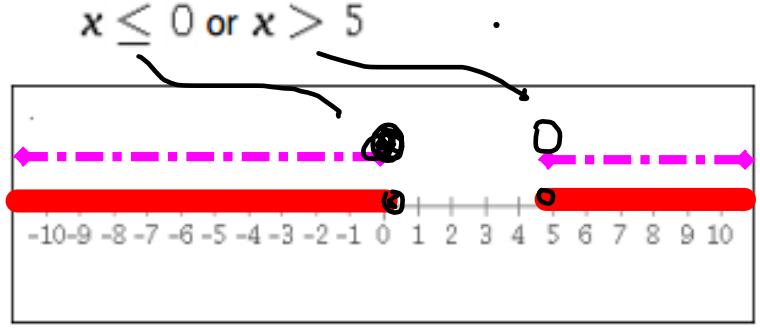
Use x only once in your inequality.



compound inequality

Graph the compound inequality on the number line.

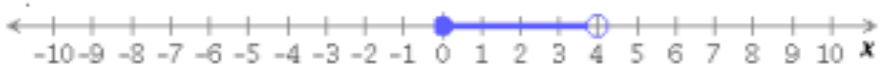
$x \leq 0$ or $x > 5$

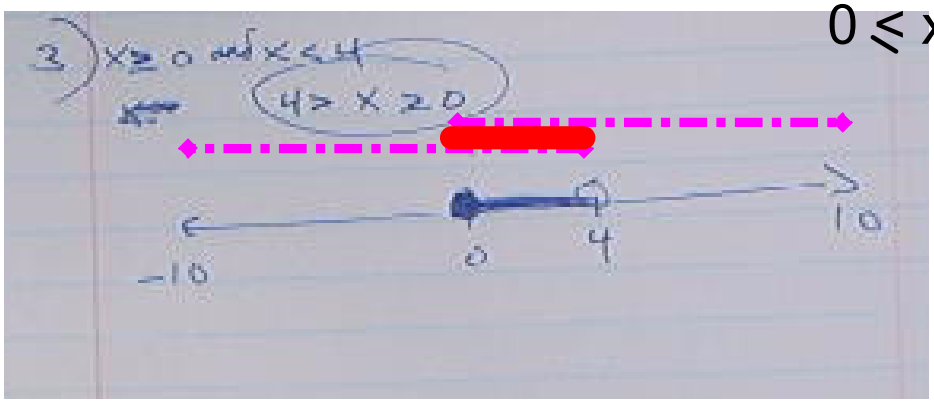


AND

$45 \leq x < 48$

Write a compound inequality for the graph shown below.
Use x for your variable.

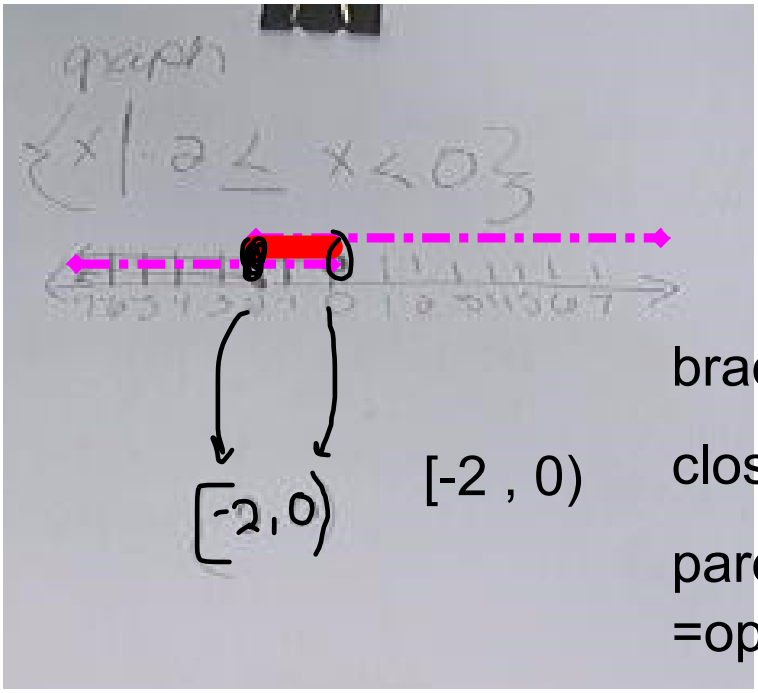




$0 \leq x < 4$

4. Graph the set $\{x \mid -2 \leq x < 0\}$ on the number line.

Then, write the set using interval notation.



[-2 , 0)

bracket= closed

parenthesis =open

5. The sets F and H are defined as follows. U = union= or

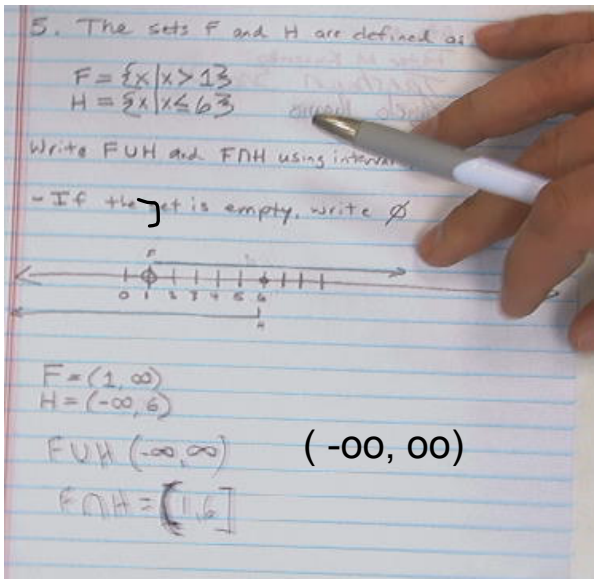
$$F = \{x \mid x > 1\}$$

$$H = \{x \mid x \leq 6\}$$

$\cap$ = intersection=and

Write $F \cup H$ and $F \cap H$ using interval notation.

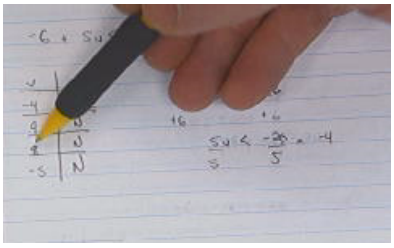
If the set is empty, write $\emptyset$



6. For each value of v determine whether it is a solution to $-6+5v<-26$

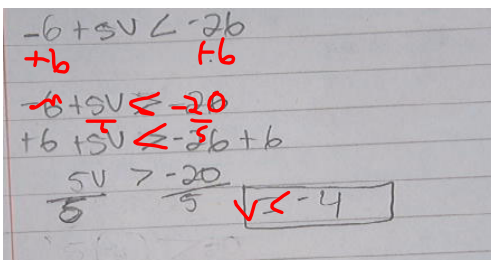
v	Is it a solution?	
	Yes	No
-4	○	✓
9	○	✓
8	○	✓
-5	✓	○

$-26 < -26$



$-6+5(-5) < -26$

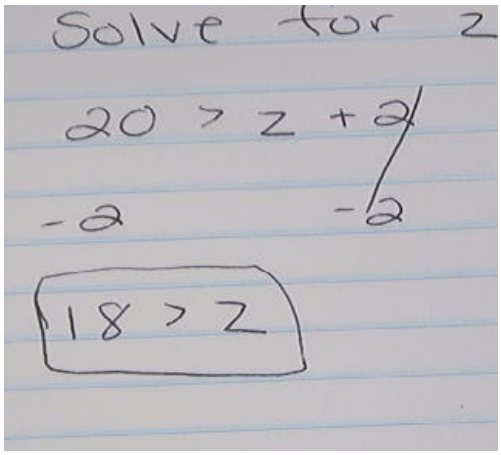
$-31 < $



7. Solve the inequality for z

$$20 > z+2$$

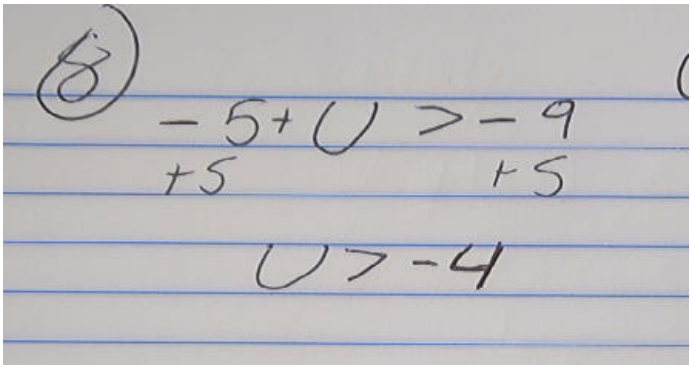
Simplify your answer as much as possible.



8. Solve the inequality for u

$$-5+u > -9$$

Simplify your answer as much as possible.



9. Solve the inequality for y

$$y+\frac{5}{8} \geq -\frac{1}{4}$$

Simplify your answer as much as possible.

$-5/8 \quad -5/8$

$y \geq -7/8$

20. Solve the compound inequality.

$$-12 \leq 4x+4 < 16$$

$-4 \quad -4 \quad -4$

$$\frac{-16}{4} \leq \frac{4x}{4} < \frac{12}{4}$$

$$-4 \leq x < 3$$

flip both inequalities if this is negative

Absolute Value

Ex $|x| = 3$

x=3 -x=3

$3, -3$

either x (+)

x was (-) then -x is positive

Ex $|x| > 3$

$x > 3$ or $-x > 3$

great OR $\frac{-x}{-1} < \frac{3}{-1}$ $x < -3$

Ex $|x+1| < 5$

$x + 1 < 5$ and $-(x+1) < 5$

less th 'and'

6. Solve for w.

$$|2w+9| = |2w+2|$$

$2w+9 = 2w + 2$ or $-(2w + 9) = 2w + 2$