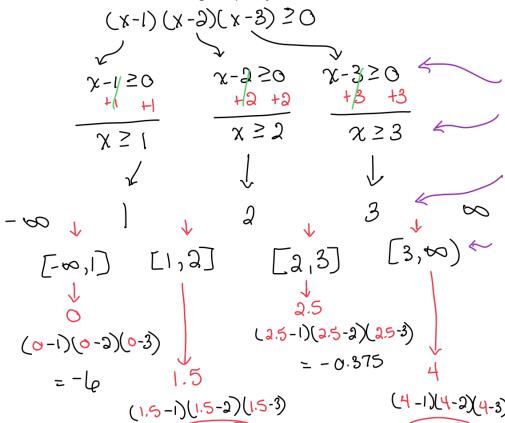
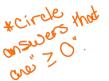
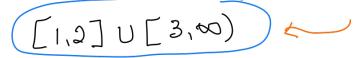
## Chapter 5.5 Notes Finding Real. Zeros of a Polynomial Function

1. Solve the following inequality.



- Write down what's in each set of () and set it "≥ 0".
- 2. Now solve for x.
- 3. Now write down those numbers.
- 4. Write down the intervals between each of those numbers.
- 5. Write down a number that could go in that interval.
- 4 6. Now replace each one of those numbers back in the original equation (4-1)(4-2)(4-3) replace each x with that number.
  - 7. Write down the answer and circle it if it is > 0, as was stated in original problem.
  - 8. Now write down the interval that goes with the numbers you circled.

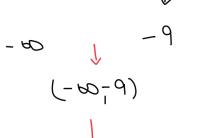


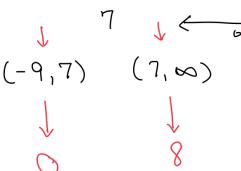


2. Solve the following inequality. 
$$(\chi + q)^2 (\chi - 1) < 0$$

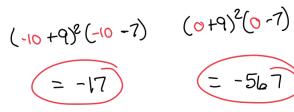
$$(x+9)^{2}(x-7)<0$$
 $x+9<0$ 
 $x-7<0$ 
 $x-7<0$ 
 $x-7<0$ 
 $x-7<0$ 
 $x-7<0$ 
 $x<7$ 

- 1. Write down what's in each set of () and set it "> 0"
- \* Then write down each expression and then write down the inequality sign and 0.
- \* now solve each one for x.





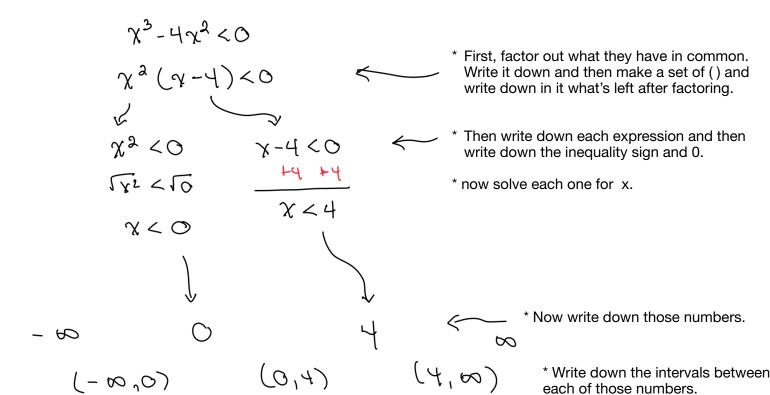
- \* Now write down those numbers.
- \* Write down the intervals between each of those numbers.
- \* Write down a number that could go in that interval



$$(0+9)^2(0-7)$$

- \* Now replace each one of those numbers back in the original equation replace each x with that number.
- \* Write down the answer and then since the original equation says < 0, circle the number if it is a negative number.

$$(-\infty, -9) \cup (-9, 7)$$



$$(1)^{2}-4(1)^{2}$$

$$= (-3)^{2}$$

(5)3-4(5)2

= 25

\* Now replace each one of those numbers back in the original equation replace each x with that number.

\* Write down a number that could go in

that interval

\* Write down the answer and then since the original equation says < 0, circle the number if it is a negative number.

(-∞,0) ∪ (0,4)

$$\chi^{3} - 2\chi^{2} - 63\chi < 0$$

$$\chi (\chi^2 - 2\chi - 63) < 0$$
 $\chi < 0$ 
 $\chi^2 - 2\chi - 63 < 0$ 

- \* First, factor out what they have in common. Write it down and then make a set of () and write down in it what's left after factoring.
- \* Then write down each expression and then write down the inequality sign and 0.
- \* now solve each one for x.

$$-\frac{b \pm \sqrt{b^{2} - 4\alpha c}}{200} \leftarrow \frac{\text{quadratic}}{\text{function}}$$

$$-(-9) \pm \sqrt{(-2)^{2} - 4(1)(-63)}$$

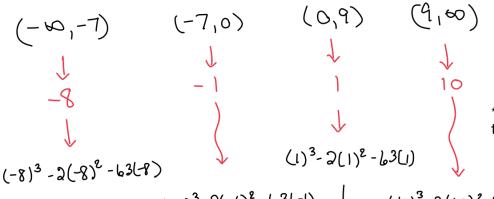
$$2(1)$$

$$9 < 0$$

$$1 - 7 < 0$$



\* Now write down those numbers in order from least to greatest.



\* Write down the intervals between each of those numbers.

\* Write down a number that could go in that interval

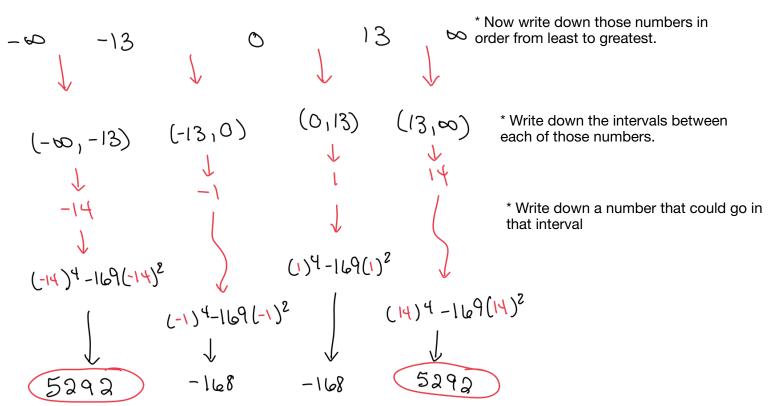


\* Now replace each one of those numbers back in the original equation replace each  $(10)^3 - 2(10)^2 - 63(pc)$ \* Now replace each one of those numbers back in the original equation replace each one of those numbers back in the original equation replace each one of those numbers. 170

original equation replace each

\* Write down the answer and then since the original equation says < 0, circle the number if it is a negative number.

- \* First move the term on the right to the left by adding or subtracting.
- \* Then factor out what they have in common. Write it down and then make a set of () and write down in it what's left after factoring.
- \* Then write down each expression and then write down the inequality sign and 0.
- \* now solve each one for x.



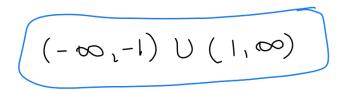
\* Write down the answer and then since the original equation says > 0, circle the number if it is a positive number.

(-∞,-13) U (13,∞)

- \* Take the 4th root of each side.
- \* In the calculator, type in 4, then push the green 2nd button, then the ^ button, and then the number (here it is 1).
- \* Remember to write down the + and of the number.

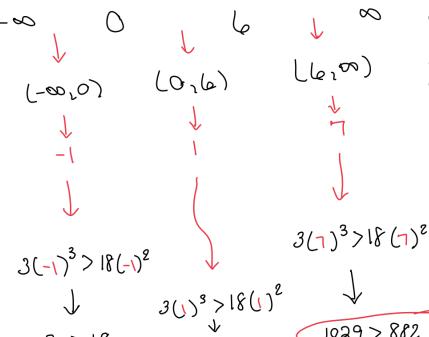
- \* Now write down those numbers in order from least to greatest.
  - \* Write down the intervals between each of those numbers.
  - \* Write down a number that could go in that interval

0 >1

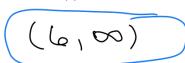


$$\begin{array}{c|c}
 3 \times^3 > 18 \times^2 \\
 -18 \times^2 & -18 \times^2 > 0 \\
 \chi^2 & (3 \times -18) > 0 \\
 \chi^2 & > 0 & 3 \times -18 > 0 \\
 \chi^2 & > 0 & 3 \times -18 > 0 \\
 \chi^2 & > 0 & 3 \times -18 > 0
 \end{array}$$

- \* First move the term on the right to the left by adding or subtracting.
- \* Then factor out what they have in common. Write it down and then make a set of () and write down in it what's left after factoring.
- \* Then write down each expression and then write down the inequality sign and 0.
- \* now solve each one for x.



- \* Now write down those numbers in order from least to greatest.
- \* Write down the intervals between each of those numbers.
  - \* Write down a number that could go in that interval



$$\frac{\chi + 2 < 0}{-2}$$

$$\frac{\chi - 4 < 0}{\chi < 4}$$

- You will make 2 equations. One with the top part of the fraction, and one with the bottom part of the fraction.
- \* Then write down each expression and then write down the inequality sign and 0.
- \* now solve each one for x.

- \* Now write down those numbers in order from least to greatest.
- \* Write down the intervals between each of those numbers.
- \* Write down a number that could go in that interval

$$\frac{(\chi-9)(\chi+5)}{\chi} \leq 0$$

$$\frac{x-9}{y} \leq 0$$

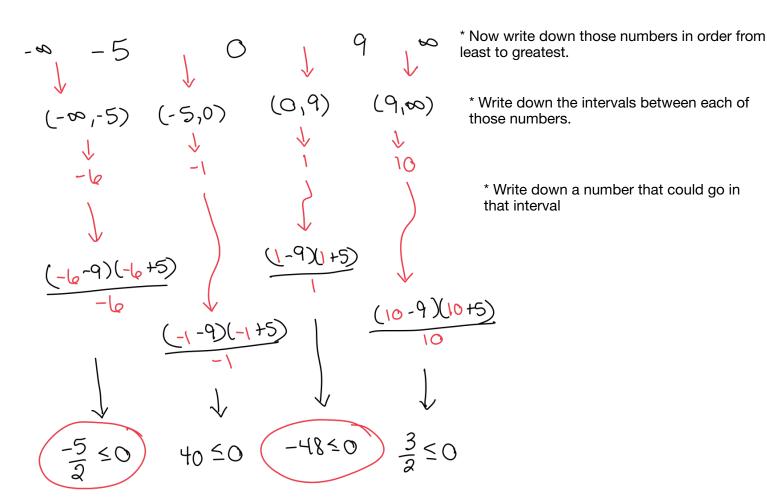
$$\frac{1}{2}$$

$$\frac{1}{2}$$

$$\frac{x+5}{-5} \leq 0$$

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

- \* Make equations from both the top and bottom parts of fraction.
- Write down each expression and then write down the inequality sign and 0.
- \* now solve each one for x.



$$\frac{(\chi-5)^2}{\chi^2-1} \geq 0$$

$$\frac{x^{2}-y^{2}}{1+1}$$
 $\frac{x^{2}-y^{2}}{x^{2}}$ 
 $\frac{x^{2}-y^{2}}{1+1}$ 
 $\frac{x^{2}-y^{2}}{x^{2}}$ 
 $\frac{y^{2}-y^{2}}{x^{2}}$ 

- \* Make equations from both the top and bottom parts of fraction.
- \* Write down each expression and then write down the inequality sign and 0.
- \* now solve each one for x.

that interval

$$-\infty -1 \qquad 1 \qquad 5 \qquad \infty$$

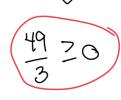
\* Now write down those numbers in order from least to greatest.

(1,5)

\* Write down the intervals between each of those numbers.

\* Write down a number that could go in





- 320
- \* Since these two are Side by side (continous) We combine them
- \* Write down the answer and circle the one(s) that are true.

$$(-\infty^{1}-1) \cap (1^{\prime}\infty)$$