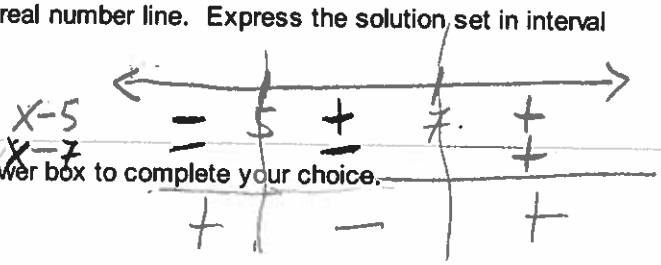
Student: _____ **Instructor:** Andreas Lazari **Assignment:** Section 3.6 Homework
Date: _____ **Course:** Math1111-Summer2018

1. Solve the polynomial inequality and graph the solution set on a real number line. Express the solution set in interval notation.

$x^2 - 12x + 35 > 0$

$(x-7)(x-5)=0$

$x=7$ and $x=5$

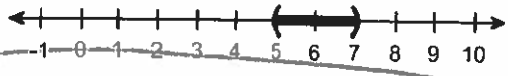


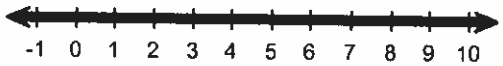
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

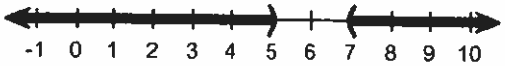
● **A.** The solution set is $(-\infty, 5) \cup (7, \infty)$
(Type your answer in interval notation. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression.)

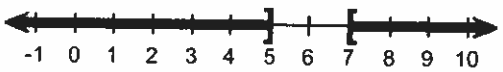
○ **B.** The solution set is the empty set.

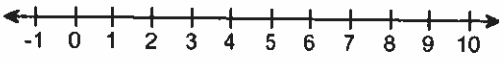
Choose the correct graph below.

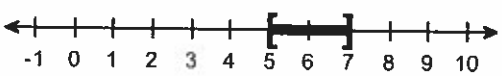
○ **A.**


○ **B.**


● **C.**


○ **D.**


○ **E.**


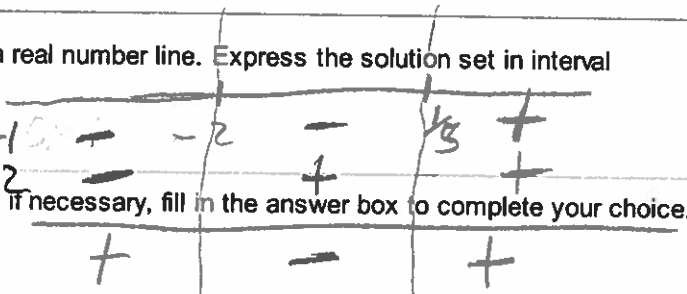
○ **F.**


2. Solve the polynomial inequality and graph the solution set on a real number line. Express the solution set in interval notation.

$5x^2 + 9x - 2 \le 0$

$(5x-1)(x+2)=0$

$x=\frac{1}{5}$; $x=-2$.



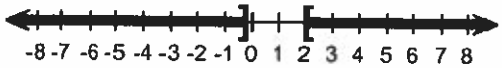
What is the solution set? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

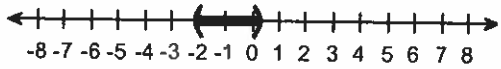
The solution set is $\left[-2, \frac{1}{5}\right]$.

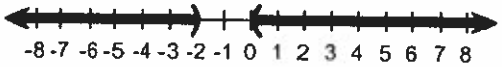
● **A.** (Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)

○ **B.** The solution set is the empty set.

Which number line below shows the graph of the solution set?

○ **A.**


○ **B.**


○ **C.**


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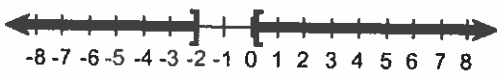
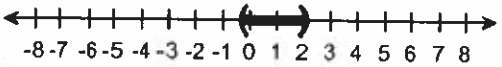
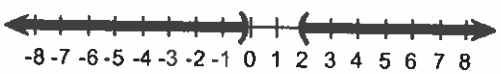
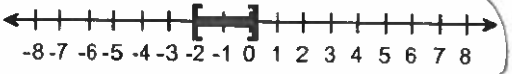
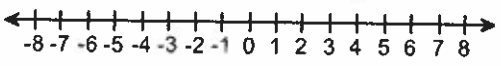


○ **E.**


○ **F.**


● **G.**


○ **H.**


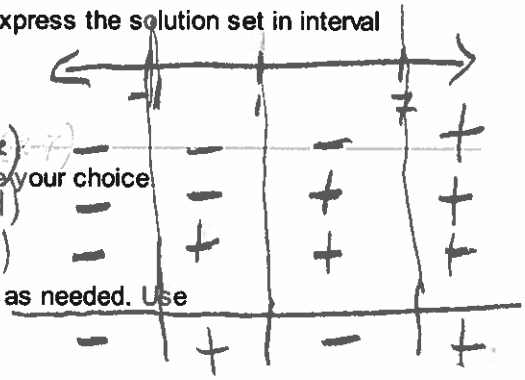
3. Solve the polynomial inequality and graph the solution set on a real number line. Express the solution set in interval notation.

$x^3 - 7x^2 - x + 7 \geq 0$

$x^2(x-7) - 1(x-7) = 0$

$(x-7)(x^2-1) = 0$

$x = 7,\ x = -1,\ x = 1$

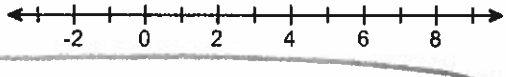


Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

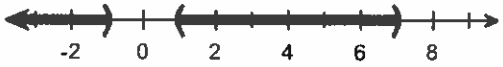
- (●) **A.** The solution set is $[-1, 1] \cup [7, \infty)$
  (Type your answer in interval notation. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression.)
- ( ) **B.** The solution set is the empty set.

Choose the correct graph below.

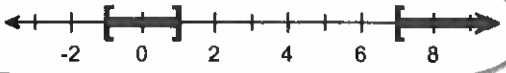
( ) **A.**



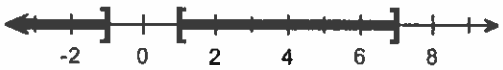
( ) **B.**



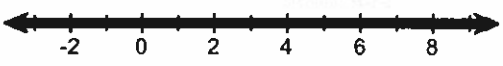
(●) **C.**



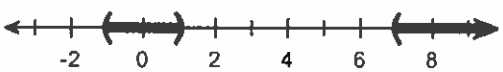
( ) **D.**



( ) **E.**



( ) **F.**



4. Solve the polynomial inequality and graph the solution set on a real number line. Express the solution set in interval notation.

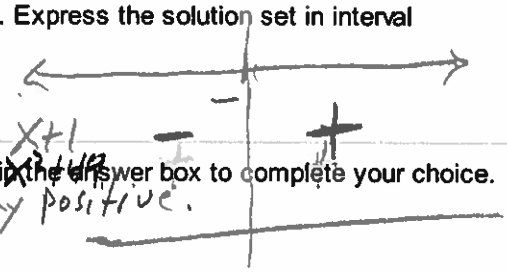
$x^3 + x^2 + 49x + 49 > 0$

$x^2(x+1) + 49(x+1) = 0$

$(x+1)(x^2+49) = 0$

$x = -1$

This term is always positive.

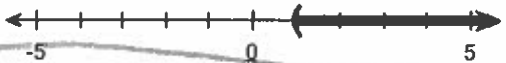


What is the solution set? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

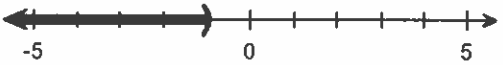
- (●) **A.** The solution set is $(-1, \infty)$.
  (Type your answer in interval notation.)
- ( ) **B.** The solution set is the empty set.

Choose the correct graph of the solution set below.

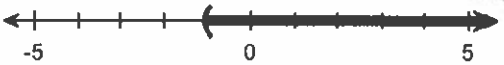
( ) **A.**



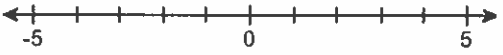
( ) **B.**



(●) **C.**



( ) **D.**

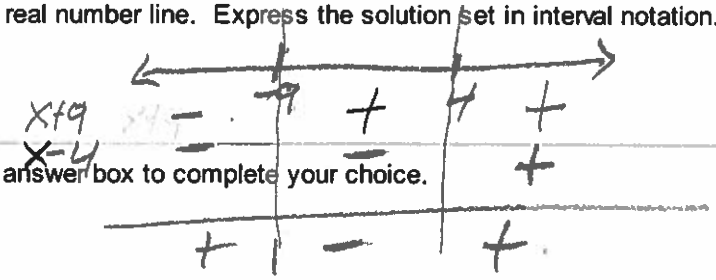


5. Solve the rational inequality and graph the solution set on a real number line. Express the solution set in interval notation.

$\frac{x+9}{x-4} > 0$

$x+9=0 \Rightarrow x=-9$

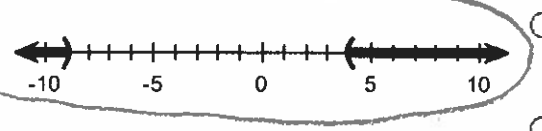
$x-4=0 \Rightarrow x=4$

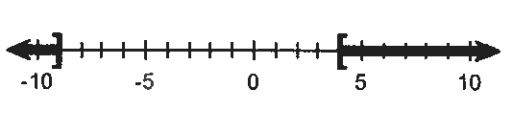


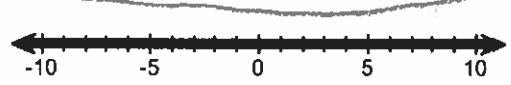
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

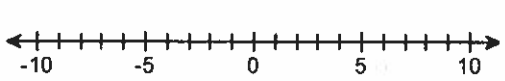
- **A.** The solution set is $(-\infty,-9)\cup(4,\infty)$
  (Type your answer in interval notation. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression.)
- **B.** The solution set is the empty set.

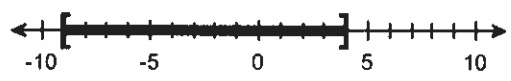
Choose the correct graph below.

- **A.** 

- **B.** 

- **C.** 

- **D.** 

- **E.** 

- **F.** 

6. Solve the rational inequality and graph the solution set on a real number line. Express the solution set in interval notation.

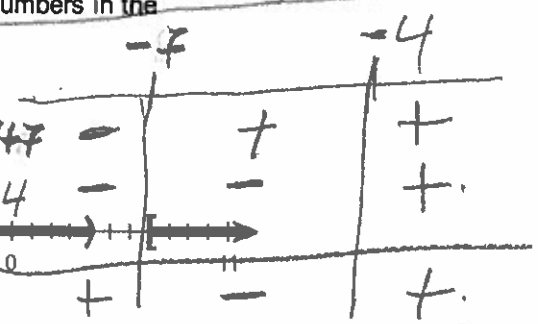
$\frac{x+1}{x+4} < 2$

$\frac{x+1}{x+4} < 2 \Rightarrow \frac{x+1}{x+4} - 2 < 0 \Rightarrow \frac{x+1}{x+4} - \frac{2(x+4)}{x+4} < 0 \Rightarrow \frac{x+1-2x-8}{x+4} < 0$

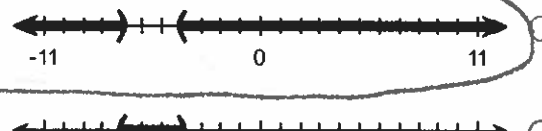
What is the solution set? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

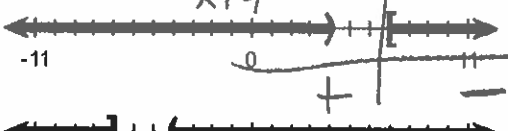
$\frac{-x-7}{x+4} < 0 \Rightarrow \frac{x+7}{x+4} > 0$

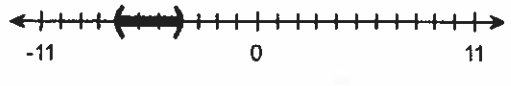
- **A.** The solution set is $(-\infty,-7)\cup(-4,\infty)$
  (Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)
- **B.** The solution set is the empty set.

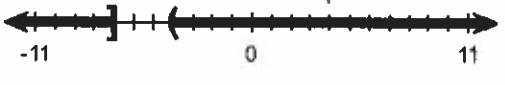


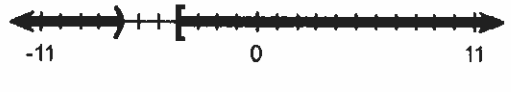
Which number line below shows the graph of the solution set?

- **A.** 

- **B.** 

- **C.** 

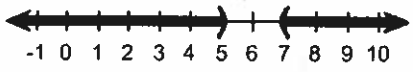
- **D.** 

- **E.** 

- **F.** 

1. A. The solution set is $(-\infty,5)\cup(7,\infty)$.

(Type your answer in interval notation. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression.)



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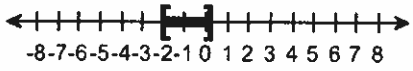
2. A. The solution set is $\left[-2,\frac{1}{5}\right]$.

(Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)



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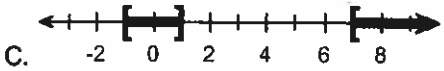
3. A. The solution set is $[-1,1]\cup[7,\infty)$.

(Type your answer in interval notation. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression.)



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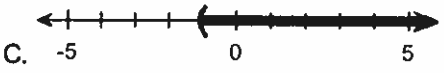
4. A. The solution set is $(-1,\infty)$.(Type your answer in interval notation.)



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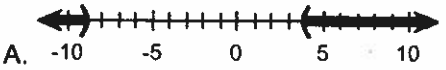
5. A. The solution set is $(-\infty,-9)\cup(4,\infty)$.

(Type your answer in interval notation. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression.)



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6. A. The solution set is $(-\infty,-7)\cup(-4,\infty)$.

(Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)