Name
Date
Course

Solving Nonlinear Inequalities (Polynomials) Homework

Solve. Write the solutions graphically and in interval notation.

① $-x^2 > 17x + 72$

② $49 - x^2 \leq 0$

③ $x^3 \geq x$

④ $3x^3 + 21x^2 + 36x < 0$

⑤ $4x^4 < 325x^2 - 81$

⑥ $x^2 < 2x - 1$

⑦ $9x^2+30x+25>0$

⑧ $x^3-8 \leq 6x-3x^2$

⑨ $3x^3+7x^2 \geq 192x+448$

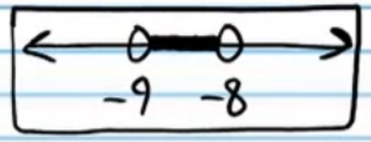
⑩ $x^2 \leq 6$

(11) $4x < x^2+1$

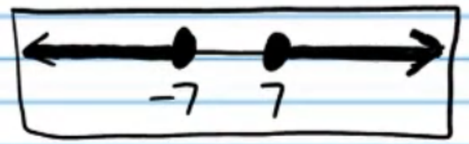
(12) $x^3+1 > 0$

(13) $64x^3 \leq 125$

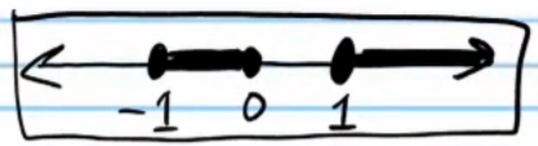
Answers

① 

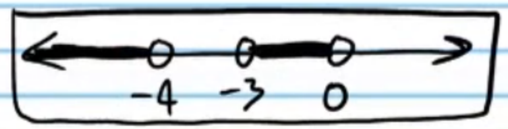
$(-9,-8)$

② 

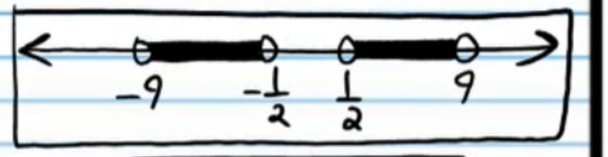
$(-\infty,-7]\cup[7,\infty)$

③ 

$[-1,0]\cup[1,\infty)$

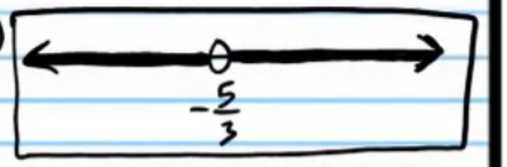
④ 

$(-\infty,-4)\cup(-3,0)$

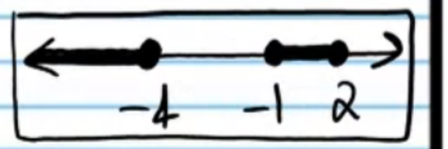
⑤ 

$(-9,-\frac{1}{2})\cup(\frac{1}{2},9)$

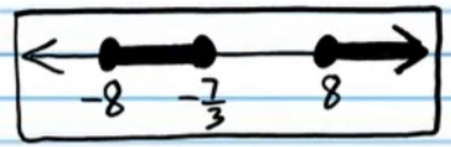
⑥ No Solution

⑦ 

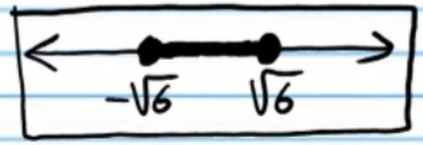
$(-\infty,-\frac{5}{3})\cup(-\frac{5}{3},\infty)$

⑧ 

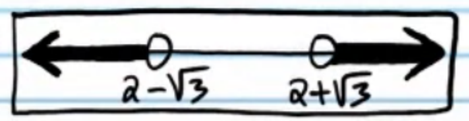
$(-\infty,-4]\cup[-1,2]$

⑨ 

$[-8,-\frac{7}{3}]\cup[8,\infty)$

⑩ 

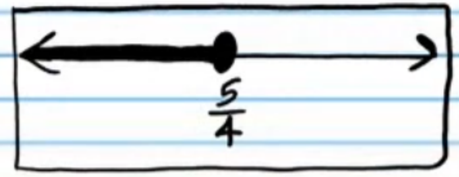
$[-\sqrt{6},\sqrt{6}]$

⑪ 

$(-\infty,2-\sqrt{3})\cup(2+\sqrt{3},\infty)$

⑫ 

$(-1,\infty)$

⑬ 

$(-\infty,\frac{5}{4}]$